Textile World Journal

A Weekly Journal of News, Market Reports and Technical Information

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Boston Convention a Big Success

THE combined attractions of the convention of the National Association of Cotton Manufacturers and the machinery exhibition of the Textile Exhibitors' Association, in Boston this week, brought together one of the largest gatherings of cotton manufacturers in the history of the industry. Over 500 attended the jubilee banquet and the various meetings of the National Association, and including superintendents, overseers and other mill men not members of the Association, who were present during the week at the machinery exhibition, the attendance of mill men ran into the thousands. From the South came a large number of cotton mill superintendents, and the textile industry of the Middle West and of Canada was also well represented. The display of textile machinery and mill supplies was by far the most attractive that has ever been shown in this country, and the convention of the National Association was the most notable in its history. The latter was particularly distinguished by the number of men of national prominence who appeared as speakers, and by the strong resolutions adopted on military and naval preparedness; of scarcely less importance was the adoption of a resolution proposing 8½ per cent. as the standard regain for baled cotton and yarns in this country, and another resolution in which the Association went on record in favor of the most strngent legislation against the misbranding and false advertising of textiles.

OFFICERS AND SPEAKERS

Albert Farwell Bemis, president of the Bemis Bros. Bag Co., Boston, is the new president of the National Association of Cotton Manufacturers, succeeding Albert Greene Duncan, who has just completed a two-year term that has been one of the most progressive in the history of the organization. The new vice-presidents are W. Frank Shove, of Fall River, and Russell B. Lowe, of Fitchburg; they and President Bemis have been succeeded as directors by Philip Y. DeNormandie, of Bliss, Fabyan & Co., Boston; Herbert Lyman, treasurer of the Merrimack Manufacturing Co., and John E. Rousmaniere, treasurer of the International Cotton Mills; R. M. Miller, Jr., Charlotte, N. C., was elected to another term, and the other directors remain unchanged. No one has as yet been appointed by the Board of Government to succeed the late Dr. Woodbury as secretary, but Treasurer Charles H. Fish continues to act in that capacity.

The most notable feature of the convention, which was held at the Copley-Plaza Hotel, was the banquet Wednesday evening at which notable addresses were delivered by President Duncan, Chairman Joseph E. Davies of the Federal Trade Commission and President Darwin R. Kingsley of the New York Life Insurance Co., before an audience of nearly 400. The keynote of these addresses was the need and opportunity for closer co-operation between government and business. Mr. Kingsley's oration on the "Trilogy of Democracy" was one of the most masterly efforts that the members of this association have ever heard. A feature of President Duncan's address at the banquet that made a strong impression upon members of the Association was his plea for a broader and more progressive policy and one that would develop an organization truly representative of every branch of the cotton industry, if not of every branch of the whole textile industry in this country.

IMPORTANT PROBLEMS DISCUSSED

Not only were a greater variety of important problems discussed at the regular sessions of the association than usual, but at each session some one or more prominent speakers presented papers. Frank A. Vanderlip, president of the National City Bank of this city gave an interesting talk on "Foreign Commerce in American Textiles" at the first session, and the dyestuff situation was discussed by ex-Congressman Herman A. Metz and other speakers. Mr. Metz declared that the German offer to allow 15,000 tons of dyestuffs to be shipped to this country under certain conditions was bona fide in every respect, and that this country will get the dyes if American boats can be provided for their shipment, and if Great Britain does not interfere. A notable feature of the first session was the announcement of the award of the association medal by Chairman Edwin H. Baker of this committee to Dr. N. A. Cobb of Washington, D. C., for his papers, delivered at the spring and fall meetings of last year on "Methods of Determining Length of Cotton Staple"; Dr. Cobb is a fiber expert associated with the Department of Agriculture, and the result of his scientific investigations of a most refined type, has proved intensely stimulating to practical manufacturers. Other prominent speakers at the regular sessions were President Kenyon L. Butterfield of the Massachussets Agricultural College, Dr. S. W. Stratton, director of the Bureau of Standards, Washington, D. C., and ex-President William D. Hartshorne of the National Association. The papers delivered by Dr. Stratton and Mr. Hartshorne on the testing of fabrics and yarns were productive of much interesting discussion, and there was also considerable discussion of the papers delivered on dyestuffs and dyeing at the first session. All of the technical papers were presented in abstract, thus allowing more time for discussion and tending to stimulate the latter.

COMMENT ON PAPERS AND ADDRESSES

While a larger variety of important national industrial problems than usual was presented at this convention, the majority were of so vital a nature as to have stimulated the interest of most business men, and it might have been expected that many would have decided opinions as to ways and means by which these important problems could be solved. Except, however, in the case of the need of industrial preparedness, of an adequate dyestuff industry and of less government interference with business, it was rare that members present at the convention would express decided opinions. With hardly an exception leading cotton manufacturers are convinced that a reasonable advance in the present tariff is needed either for the purpose of preventing an invasion of cheap foreign products following the war, or as insurance against such a contingency. They are even more united in the belief that the Hill Bill, or legislation closely allied to it, is necessary to stimulate the growth of an adequate domestic dyestuff industry. Despite the assurance of Herman A. Metz that the German offer of 15,000 tons of dyestuffs for export to this country is bona fide, there were few manufacturers who expressed confidence that any early relief could be expected from this quarter. Much interest was manifested in the paper on "Reconstruction in Dyeing," by Edward S. Chapin, but few believed that anything could result from his suggestion that the various interested industries should hold a conference to consider ways and means of immediately increas-

(*Continued on page 42*)

Textile Show at Boston

THE Fifth National Textile Exhibition, held in Mechanics Building, Boston, during the week by the Textile Exhibitors' Association, afforded a spectacle of textile equipment in greater variety than was ever before gathered into one building. Variety, in fact, was the outstanding feature of this year's exhibition, and every visitor engaged in textile manufacturing took away some knowledge of practical value to his mill. With every show progress has been made toward the ideal of the Exhibitors' Association to include every branch of textile activity. The early shows were practically devoted to cotton mill equipment, wool, worsted, and silk equipment being incidentally displayed by concerns whose largest field was the cotton manufacturing industry. Each year other branches have shown more interest, and the exhibition which closes to-day is more diversified than ever before.

PREVIOUS SHOWS SURPASSED

There were about 225 exhibits, including the power department, which figure slightly surpasses the high record for number of exhibits made two years ago. The educational value of previous shows was far surpassed. Equipment worth hundreds of thousands of dollars was in operation, showing the latest improved practice in nearly every important mechanical process in converting textile fibers into finished products. No revolutionizing developments were shown in complete form, the advance of the past two years being practically confined to numerous refinements of existing principles, designs and constructions. Many of these improvements, however, will have an important bearing on successful manufacturing practice, and a careful reading of the detailed descriptions beginning on page 111 will repay every manufacturer, superintendent and overseer. Interesting contrasts were also shown between the elaborate and highly efficient machinery of 1916 and the methods of former years.

Practically all the machinery was ready to operate with the opening of the doors of Mechanics Building on Monday, reflecting great credit on Secretary Chester I. Campbell, the skilled manager of the automobile show and numerous other similar events, and on the exhibitors. The arrangement of spaces was well planned, with ample aisle space for the throngs of visitors. The decorative scheme was appropriate. Art paneling on the walls, with the national colors, and neat white railings made an excellent setting for the displays. The individual spaces were in harmony with the general plan, and some idea of the pleasing effects is shown in the large number of pictures on pages following 111.

SUCCESS GRATIFYING TO EXHIBITORS

The unqualified success which marked every feature of the exhibition was very gratifying to the Textile Exhibitors' Association, and particularly to President F. H. Bishop, Vice-President E. F. Hathaway, Secretary and Treasurer Chester I. Campbell, and directors George P. Erhard, Leon W. Campbell, Charles F. Hutchins, C. A. Chase and Lewis E. Tracy.

There is probably no way of compiling the results in sales of equipment, but it is known numerous sales were made, an increasing number of machines being marked as "sold" during the week. Very pleasing were the expressions of encouragement from the exhibitors, who are well satisfied with the amount of business closed and in prospect. The largest days were Wednesday and Thursday, on account of the presence in Boston of many manufacturers for the convention of the National Association of Cotton Manufacturers at the Copley-Plaza Hotel nearby. Manufacturers and their important men were on hand in large numbers, and probably every section of the country was represented. During the week an unusually large number of southern mill men called at the TEXTILE WORLD JOURNAL space, which was one of the best located in the hall. It was devoted to the reception of subscribers and advertisers, and proved a center of information.

Latest Cable News

Manchester, Eng., April 28 (Special Cable to the Journal).—Moderate increase in business in yarns. Spinners generally easier to deal with. More interest shown in staple cloths; prices very irregular. Bids more numerous from India on dhooties and jacconets; occasional moderate sales at low prices. China bought gray shirtings on a very low basis; otherwise general conditions unchanged.

Bradford, Eng., April 27 (Special Cable to the Journal).—Merinos very strong. Tops penny dearer. Crossbreds less active; half penny dearer. It has been definitely settled that America gets no licenses on merino or crossbred wool.

Textile World Journal
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A TENET OF OUR CREED: WE BELIEVE IN THE CONSERVATION OF AND PROTECTION TO DOMESTIC INDUSTRIES.

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TEXTILE EXHIBITIONS

If a large attendance of mill men, the interest-compelling character of exhibits, and the attractiveness of the latter, are a fair index by which the success of such an exhibition may be gauged, then the one held this week in Mechanics Building, Boston, by the Textile Exhibitors' Association was the most successful on record.

It would not be fair to make direct comparisons between the present show and its last two predecessors, for the business conditions obtaining to-day with manufacturers of machinery and supplies, and with manufacturers of yarns and fabrics, are so radically different, and so much more prosperous than they were when previous exhibitions were held, that efforts to compare the results of these various exhibitions would be unfair. Since large numbers of exhibitors of lines that were strictly textile were not actively seeking business, they could have no reliable gauge of the success of their exhibits. But even if they had been in a position to accept orders freely at this time, it is doubtful whether they could have secured any better results through an exhibition than through regular selling methods alone.

Large numbers of mill men who attended the exhibition expressed the opinion that it was the most attractive display of textile machinery and supplies that has been made under the auspices of the Textile Exhibitors' Association; yet in the same breath they commented upon the comparatively small number of new machines and devices exhibited. This is not strange, for this is the fifth exhibition that has been held by this organization, and by its immediate predecessor, in the last nine years, all but one of these shows having been given at intervals of two years. The first few shows that were held gave machinery and supply men opportunity to display all of the new things brought out by them up to that time; and the important new developments since then have been very few. Even in the power show, and in the displays of miscellaneous exhibitors, the important innovations were less numerous than usual. As long as textile machinery and supply manufacturers are pushed for deliveries as actively as at present, they will have less opportunity than usual to devote to the development of improvements in their machinery, or to the exploitation of new things; it is reasonable to suppose, therefore, that an exhibition to be held two years from now might contain even fewer novelties than this week's exhibition.

While a very large proportion of the manufacturers of textile machinery, and of supplies that are strictly textile, believe that the time has come to extend the period between shows, this does not necessarily mean that it would not be possible for the Textile Exhibitors' Association to organize and produce an exhibition of a different character two years from now, without the participation of the manufacturers mentioned, that would prove quite as interesting to mill men, and would perform as great a service to the industry, as any of the exhibitions that have been held thus far. For instance, it is not impossible that the domestic dyestuff industry will have developed, by that time, to a point where an exhibition of its products, and of dyed yarns and fabrics, could fill a large department and prove vitally interesting. Dyeing, bleaching and allied machinery could be exhibited in the same department, and so could the work of dyers, bleachers, mercerizers and finishers. These and dozens of allied lines have never been a prominent feature of previous textile exhibitions but are well adapted to exploitation of this kind. There has never been brought together a comprehensive exhibit of safety devices for textile mills, of textile welfare work, or of the up-to-date housing of textile operatives, all of which would make extremely instructive and attractive features of an exhibition. The unfortunate feature of exhibits of the latter class, and of many others of a similar character, is that they could not be made profitable unless the paid attendance were enormously larger than at any previous textile exhibition.

The Textile Exhibitors' Association is a strictly co-operative organization, and was not organized for the purpose of making a profit for its members, but its expenses are always large, and it must depend upon exhibitors for its revenue. Unless some way can be found to obtain the financial co-operation of mill men, it will never be possible for the organization to give exhibitions that are of a purely educational character and which are not financed by revenue accruing from exhibits. Therefore, if this and other organizations of a similar character find it necessary in the future to present their exhibitions less frequently, it should not be forgotten by mill men that they are quite as responsible for this action as are the organizations themselves.

PROSPERITY AND PREPAREDNESS

The short half year that has elapsed since the last semi-annual meeting of the National Association of Cotton Manufacturers marks the difference between poor business and prosperous business in the cotton manufacturing industry of this country. Never before has there been so radical an improvement in trade within so short a period. It came without precedent, and it continues with no sure precedent as a guide to possible future developments. Manufacturers had dared to hope that the effect of the European war would save them from the influence of adverse tariff and business legislation as long as it lasted, but few believed that such unexampled prosperity would develop, even for a temporary period. It is because of its unexpectedness, and because they know it must be temporary, that textile manufacturers and business men generally are taking their prosperity seriously.

There are few textile manufacturers, whether Republicans or Democrats, southerners or northerners, who have any delusions as to what would have been the present condition of business had the European war not intervened. There are few who are not anxiously awaiting the completion of some adequate scheme of military and naval preparedness, in order that an equally adequate scheme of industrial preparedness may be given the right of way in Congress. There are few who believe that adequate aid will be forthcoming from the present administration, and with hardly an exception they rue the day when business, and the welfare of millions of workers and their dependents, became the pawn of politics. They are just commencing to discover that, largely as a result of their indifference, government and politics have gradually become synonomous to many professional politicians and that this is largely responsible for many of the business man's present troubles.

Business and politics have been so intimately intermeshed for a long period, that it is impossible immediately to untangle the mess, but a favorable start has been made, and authorities like Chairman Joseph E. Davies of the Federal Trade Commission are optimistic regarding the future, and hopeful that government and business are entering upon a new era of harmonious understanding and co-operation; an era in which the latter automatically may become independent of politics, in so far as the business problems involved are not political problems. Chairman Davies' address at the convention of the National Association of Cotton Manufacturers in Boston gave much encouragement to his hearers, and former President Duncan's address on national ideals, pointed the way toward emancipation from partisanship, individualism and sectionalism. As Mr. Duncan says, "We have failed lamentably in this country to put a strong national feeling as the fundamental basis of our policy of government. Too often have sectional and local considerations been given weight as opposed to a national conception. There has been too much legislation for selfish ends, and too little national legislation for national needs. Our legislators, who are not alone to blame, as they but represent the sentiment of their constituents, have too often devoted their time and attention to the securing of appropriations for local benefits, to legislation to promote the advantage of one section as opposed to another, rather than to adopting a broad, constructive and national policy which should regard all questions in the light of national concern, and not in the sole interest of any one section of our country or of our population."

FIGHTING TRADE ABUSES

Women's wear selling agents are to be congratulated at the firm stand of the majority against the attitude of cloak and suit houses who have attempted in a manner, that is generally regarded as concerted, to refuse deliveries and cancel orders. The large majority of sellers have notified the garment trade that if they refused deliveries when tendered, their entire order would be canceled. Of course, this procedure has not been universal, but yet enough have taken this stand to signify a very healthy development on the part of manufacturers' agents.

Of course, this condition on the part of the manufacturing trade is brought about by the agitation on the labor situation. At this writing there appears to be every likelihood that the threatened lockout of operatives will occur, according to schedule, to-day. The employers have declined to meet with the Mayor and the Board of Conciliation to discuss the possibility of adjusting the trouble. What the results of a lockout or strike will be it is impossible to foretell. But members of the piece goods trade are firmly convinced that there is little or no basis for labor difficulty at this time. They argue that matters of dispute could have been settled were the manufacturers so inclined.

As a basis for these arguments, it is contended that the important members of the cloak and suit trade are only pursuing a policy which they inaugurated some years ago, using the strike weapon in an effort to drive out smaller competitors and to monopolize a large part of the business themselves. Their methods have been arbitrary and seemingly governed only by selfish motives in the past, and there appears to be little change in connection with the handling of the present difficulty. In addition to this declared purpose, it is also believed that labor difficulties would be used as a means by which to bear the piece goods market. Undoubtedly the garment manufacturer has unwillingly paid the advanced prices which have been made necessary by raw material and piece goods conditions.

From the selling standpoint little sympathy is wasted on the garment manufacturer, especially those of larger proportions. Their methods are claimed to have become unbearable in many instances and the selling agent has only waited for a favorable opportunity to take a stand against further encroachments. There are not a few in the piece goods market who are willing to define their stand against the big operator as compared with the medium and small-sized manufacturer. The lack of loyalty and the uncommercial methods which have characterized the formers' business relations with sellers, have so outraged the latters' ideas of correct business tactics that they have transferred in large measure their allegiance to the seemingly less important division of the industry. Their argument is that the small man of to-day, if fostered and encouraged and even financed, will become the large man of to-morrow, and that he deserves protection and assistance in the unequal fight with his larger competitor who at the least provocation will utilize every means in his power to embarrass those from whom he has bought merchandise, if such action will be of advantage to him.

It is to be hoped that the position taken by the majority of selling agents will be sufficiently unanimous to convince the operator that it is useless to practice methods that are not in accordance with high-grade commercial operations.

AVAILABLE COTTON SUPPLY

R. K. MacLea Replies to Criticism of Figures and Suggests Conclusions

The New York office of this paper is in receipt of the following communication:

Editor Textile World Journal:

We wish to thank you for the receipt of your Special Bulletin giving the available cotton supply in the United States at this time.

While your figures are correct, we are taking the liberty of drawing your attention to the fact that we believe your interpretation of them is incorrect, and make this statement mainly for the purpose of having the gentleman who prepared same make a further explanation to assist us and your other readers if he cares about doing so.

We note that, according to your deductions, the available supply of cotton in the United States as compared to last year is less by 580,000 bales, added to which should be the reduced linter stock which, according to your figures, has been reduced by about 180,000 bales. Five hundred and eighty thousand bales of cotton plus 180,000 bales of linters makes a reduction in the available supply under last year of 760,000 bales in this country.

According to all reliable reports coming to us, the English cotton mills are consuming as much, if not a little more, cotton at this time than they were last year. The other foreign countries outside of Germany and Austria are in some cases consuming almost double what they were last year. The supplies of cotton in foreign countries as you state are quite low, and while the financial strain may keep these stocks low, still, we do not believe that the English Government is strained to such a point that they will allow their mills to be embarrassed for the want of cotton, and in the minds of the best posted men to whom we have talked, there is no doubt but that England will shortly begin importing cotton in larger quantities than she has been doing for a good many months past, not to speak of the increased exports that will go to Japan and other neutrals.

Of course, this is guess work on either your part or ours, but the fact remains that the English stock of cotton is very low at this time and that the mills are running overtime. The chances in our judgment are strongly in favor of those mills who are running overtime, bringing pressure to bear in sufficient force to allow them to secure the necessary amount of cotton with which to complete the season on overtime work, and if we are correct in this, it will mean that our exports eventually will be somewhat in excess of 6,000,000 bales for the season. The United States in cotton and linters combined, according to the last Government report, is consuming almost 700,000 bales a month. Your report was made as of March 31, and if this country is consuming 700,000 bales a month from now to Aug. 1, they will have consumed another 2,800,000 bales of cotton. There will be exported another 2,000,000 bales, which will still leave England and the other foreign countries very dry of cotton, and these two figures combined will take 4,800,000 bales from your 7,198,000 bales available supply, or will leave a total of 2,300,000 bales available supply.

You cannot get away from the fact that the world's consumption of cotton, if it proceeds for the balance of the year at the rate it is now going, will approximate 14,000,000 bales of cotton, and according to your figures the total available supplies for the year were 15,489,000 bales. If you take 14,000,000 bales from this, it will leave only a normal carry-over, or in the neighborhood of 2,000,000 bales, including linters, as has just been figured out by the above estimate of ours.

Of course, there will not be as much cotton exported this year as there was last, but there will be as much cotton used by countries to whom we do export, or almost as much as there was last year, in spite of the fact that Germany and Austria have been securing none, and therefore, while according to the above figures, there will be a 2,300,000 available supply of cotton in this country, European stocks will be greatly reduced, which means that the world's visible supply will not be any more than a normal carry-over.

The above figures are yours, with the difference of interpretation put on them by your expert and the facts as we see them, and we would like to have the further opinion of your expert on this matter if he cares to give it after reading the above.

Natirup.

Our review of the "Available Supply of Cotton" in the United States as published in this journal's issue of April 22 is purely a digest of facts as they appear statistically. We have not made deductions. We do not attempt to draw conclusions of what will be the final world's takings of cotton this extraordinary year. All precedents can give no accurate basis for an answer.

Too little attention is being given by spinners and weavers, however, to:

1st. The actual world conditions now existing.

2nd. The amount of actual cotton here and

3rd. The various reasons why Europe is not taking cotton on any such scale as last year.

Holders of cotton believe that Europe will finally have to take as much cotton as last year, yet without analyzing the reason for such blind belief. As Natirup suggests "this is guess work" on their part.

We do not care to do any guessing. We only point out the importance of the figures as they appear, and urge spinners to watch the situation from a true angle instead of the point of view of a holder of cotton, or that of his selling agencies who flood the market with advice.

We again state that linters should be entirely separated this year, and, in fact, during future years, to arrive at a true basis of comparison. We think it should not be necessary to have to do a lot of hunting among the disjointed tables of the Census Bureau reports, to collect and arrange the facts from a spinner's standpoint. We will continue to do it, however. We shall urge the Government to hereafter adopt our recent method of presentation.

In the special bulletin of April 15, reprinted in issue of April 22, the situation was treated as of March 31, which covers Government figures to that date, but only published April 14. In the issue of April 22 the following was added:

"**Editor's Note.**—It may be stated that the continued small exports for the first three weeks of April give emphasis to the foregoing digest, and that on May 1 we will have approximately the same large amount of cotton on hand in the United States as last year. It may be further added that our consumption figures published in our issue of Dec. 4, 1915, amounting to 7,216,000 bales, long before the trade had any idea of such prospective increase in our consumption here, is proving most accurate, and from future goods sales at this time is correct."

This should answer one important question Natirup asks.

As regards England, she is more closely allied with European users of cotton than ever before. England, with her vast wealth and resources, is financing, and will continue to finance, her allies. England is not now worrying over cotton. She knows plenty is here. She knows she can come and get what she needs when wanted. She can so well co-operate with her spinners that still smaller stocks of cotton can be carried abroad without hurting producers of goods. She can prohibit speculation in actual cotton by not allowing more than a fixed amount to reach her shores; and, in fact, is already considering it.

England is consuming far less than a normal amount of cotton, and yet her takings are somewhat more than last year; in fact, 360,000 bales more to April 21, inclusive. She has also the "Lever Law" as a further aid in charging us for carrying her cotton for her here.

The best way for Natirup to obtain an idea of what Europe will take is first to know what has been exported to Europe from the United States to date, what the total exports last season were, and the "normal" consumption of all kinds of cotton for a period of five years before the war, all of which are given in a separate table herewith. (See bottom of column.) Actual comparisons are impossible, but a fairly accurate idea of the situation can be had from a careful perusal of this table. One man's opinion is just as good as another's on this point.

On the question raised by Natirup in regard to the large consumption here in March, it must be remembered that many mills pushed hard to make up shortages of January and February deliveries and comply with urgent spring requirements. Labor shortage in spring and summer will offset. It requires the big March and April figures here to make the consumption what we anticipated last November, viz., 7,216,000 bales.

Natirup makes something of an error in stating we figured the total available supply this year as only 15,489,349 bales, and then deducting an approximate consumption of 14,000,000 bales from this figure, thereby showing a carry-over into next year of about 2,000,000 bales, including linters. If linters are to be included in his way of reckoning the possible carry-over, they must have been also first added to the available supply of lint cotton, which he overlooked to do. Our table gave it as follows:—lint cotton, 15,489,349 bales; linters, 1,324,060 bales—total available supply, therefore, 16,813,409 bales. Therefore, if he wishes to figure the world's consumption at 14,000,000 bales, it leaves a carry-over, according to his method, of 3,324,060 bales, not 2,000,000.

This, again, emphasizes the fact that linters are confusing the situation, and should be entirely separated from lint cotton. A special and separate market exists for linters. Their present large consumption befogs the facts.

We would not dare to figure the "world's" visible supply at the end of the season, as no reliable figures exist showing the amount of stocks abroad or actual consumption on the Continent of Europe.

Figures to date indicate that exports will not total over 5,500,000 bales this year.

Economy is very necessary throughout all Europe. Cotton cloth and cotton wares there must be made to do two and three years' service now instead of one.

R. K. MacLea.

Table of comparisons showing Exports of Cotton to sundry European countries this season to April 21, 1916, against total exports for last season, and the average consumption for five years before the War, ending 1915.

Compiled by Thomas Sinclair.

Countries.	Exports of American Cotton from Aug. 1, 1915, to April 21, 1916.	Exports of American Cotton from Aug. 1, 1914, to July 31, 1915.	Average Consumption of all kinds of Cotton for the five years, 1911-15.
	Bales.	Bales.	Bales.
Norway	14,043	(a) 56,473	(a) 14,255
Sweden	50,290	(a) 667,911	(a) 100,000
Denmark	300	(a) 41,812	(a) 27,500
Holland	72,694	(a) 610,202	(a) 105,000
Russia	164,026	175,360	*900,000
Spain	251,723	448,304	439,000
Portugal	49,063	20,430	
Italy	599,145	(a)1,085,859	(a) 880,000
Greece	695	6,996	23,000
Totals	1,201,889	3,113,347	2,488,755

* Before the War, including Poland and Finland, about one-half of the Russian mills' requirements were supplied by Russia grown cotton, which averaged about 1,000,000 bales per annum. These figures, 900,000 bales, therefore, are the average imports of all kinds of cotton into Russia.

(a) The overplus of imports over consumption represents amount of cotton transshipped to the Central Powers.

Note.—Average mill consumption for five years (1911-15) in Germany, 1,980,000 bales; Austria-Hungary, 829,000 bales; Bulgaria, 5,000 bales; Turkey, 40,000 bales; and Asia Minor, 47,400 bales. The three latter countries produced all their own cotton consumed, and exported as much again.

DOUBT DYE SHIPMENTS

Thought to Be Political Move on Part of Germany

WASHINGTON, D. C., April 28.—"I have not been called upon to take charge of the 15,000 tons of dyestuffs which the German Embassy says will be shipped to this country," said Secretary of Commerce Redfield to your correspondent to-day when asked as to whether or not he had been approached on the subject. This statement may or may not be significant, but in view of the fact that he has been asked to be the official consignee in other dyestuffs shipments which have come to this country since the outbreak of the war, Secretary Redfield's statement is interesting.

It is understood on good authority that following the publication of the official statement of the German Embassy giving out last week, the Department of Commerce has received many communications asking if the shipments would come through, when it might be expected, etc. Inasmuch as Secretary Redfield has no official information on the subject he has been very discreet in answering these inquiries.

For some unknown reason government officials who have asked the State Department if it has received any official information from the German Embassy other than the published newspaper statement, were given to understand that no communication had been received. There has been the greatest amount of conjecture here among Congressmen and Senators who are interested in the dyestuffs situation regarding the statement as given out by the Embassy. It has been pointed out that there are many good reasons why the German Government would be glad to have it known that they were willing to ship dyestuffs to the United States. Just at this time, when the diplomatic conditions are strained, to say the least, it seems probable that the German Government would be glad to have the country at large think that they were willing to sacrifice something for the sake of friendship. Moreover it must be remembered that at the present market price such a shipment as they suggest sending would be worth approximately $30,000,000. Without doubt Germany would be glad to have this amount of money coming into the country. Also it being understood that the dyestuff question in Congress is about "coming to a head," it seems possible that the German dyestuffs manufacturers are anxious to have American consumers of dyestuffs believe that this large amount is forthcoming, thereby relieving their anxiety somewhat.

Information has been in the hands of Government officials here for some time to the effect that the German dyestuffs manufacturers have been pressing the Imperial Government to allow dyestuffs to come through, in so far as they are able, pointing out that if they are not careful they will lose their market in America. Whether or not this pressure brought to bear by the German manufacturers has had anything to do with this latest statement of the Embassy, or whether or not any shipments will come through in the near future is merely a matter of guess work at this time.

The general thought is here, especially among those who have watched this situation closely, that the statement on the part of the Embassy is just a political move. Coming as it does just at this time when it is generally believed that some action is to be taken by

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OBITUARY

Col. Robert H. I. Goddard

Col. Robert H. I. Goddard died suddenly April 22, at his residence, Hopeton House, Providence, R. I., in his 79th year. As a youth, Col. Goddard's home was in Providence. He entered Brown University in 1854, graduated with the degree of A. B. and later won the advanced degree of Master of Arts. In 1861 he enlisted as a private in Company C, First Rhode Island Volun-

COL. ROBERT H. I. GODDARD

teers and won the rank of Lieutenant Colonel for gallantry. After his return to Providence he continued his military activities and served on the staff of Gen. Burnside, who was elected governor, and afterwards for 10 years, served as Colonel of the First Light Infantry in Providence. A few months before enlisting as a volunteer in the Civil War, Col. Goddard had entered the counting room of the firm of Brown & Ives. Upon his return after the war he resumed his connection with that firm. Later he became associated with his brothers, and with Robert Ives Gammell in conducting the plant of the Londsdale Co., the Hope Co., and the Blackstone Valley Mfg. Co. His holdings in the first two concerns he maintained throughout the rest of his life. At the time of his death he was President of the Lonsdale Co., and Treasurer of the Hope Co. He was also Treasurer of the Berkeley Co. and a member in the firms of Brown & Ives and Goddard Bros. In addition, he has been actively associated with many other leading Rhode Island business houses, and for nearly 30 years on the finance committee of the Rhode Island Hospital Trust Co. He was also a member of the board of trustees of the Providence Institution for Savings, and, until within a few years was on the investment committee of that bank. Col. Goddard's services to the community in which he lived cannot be estimated. He was the embodiment of the finest qualities that go to make up the highest type of citizen, leading a life of leadership as soldier, manufacturer and philanthropist.

John W. Wheelwright

John W. Wheelwright, for many years an influential figure in the cotton goods market, died recently at his home in Brookline, Mass., at the age of 87 years. Mr. Wheelwright was born in New York in 1829. Shortly afterward, his family moved to Boston and, as a young man he entered the dry-goods commission house of Caleb Chace & Co. In 1851, at the age of 22, he became partner in this firm and its name changed to Chace, Wheelwright & Co. In 1861 John Comerais became partner. At the death of Mr. Chace in 1862, the firm became Wheelwright & Comerais. In 1866 Gen. John F. Anderson became a junior partner and the firm name was changed to J. W. Wheelwright & Co. Several other changes followed and in 1870 the firm became Wheelwright, Anderson & Co. This firm controlled the accounts of an important group of eastern mills for many years. In 1887 Gen. Anderson retired and the firm became Wheelwright, Eldredge & Co., Mr. Eldredge representing the firm's New York business. In 1901 Mr. Wheelwright himself retired, the succeeding styles of the firm being Eldredge, Lewis & Co., and West, Baker & Co. Mr. Wheelwright was director of the Cabot Manufacturing Co. for many years and also of the Holyoke (Mass.) Waterpower Co. and the Second National Bank of Boston. He was a member of several important New England clubs. He is survived by a son, Arthur W. Wheelwright, and a daughter.

Kenneth Benedict Collins

Kenneth Benedict Collins, president of the Collins & Ackman Co., plush manufacturers, Manayunk, Pa., with offices at 235 Fifth Avenue, New York, died as the result of a fall Friday, April 14. While on his way to keep an appointment with his brother he attempted to rescue a woman from the third story of an apartment house, Columbus Avenue and 86th Street, before the fire department arrived. He had brought her down to the first floor on the fire escape when he lost his balance and fell to the street. He died four hours later at the Knickerbocker Hospital, without regaining consciousness. Mr. Collins was born in Olean, N. Y., in 1885. He received his education at Trinity School

KENNETH B. COLLINS

where he was prominently interested in athletics. He was a member of Squadron A, Independent Cavalry, and of the Aldine Club. He succeeded his late father as president of the company upon the latter's death last June. He leaves a widow.

Alfred Self

Alfred Self died at his home in Brookline, Mass., April 22, in his sixty-sixth year. His sudden death, following a brief illness, was a surprise to his friends and associates who were familiar with his activity. Mr. Self started business in Philadelphia with a commercial agency, and later moved to Boston, where he established the Alfred Self Credit Agency. For many years he has been considered the leading factor in credits in the Boston wool and textile trades, and buyers entering the market have been dependent upon his indorsement to establish credits. Boston banks have employed him to pass upon credits, and in all quarters of that market his word has been considered final. He is survived by a widow, son and daughter.

John C. Tatum

John C. Tatum, senior member of D. O. Tatum & Co., cotton cloth brokers, died at his home in Great Neck, L. I., April 24, at the age of 48. The suddenness of his death, which resulted from pneumonia, came as a great shock to his friends who had seen him in the market only a few days previous. Mr. Tatum entered the brokerage business of his father when a boy and succeeded to the business as senior about 16 years ago. For many years this firm has been a factor in the fine combed goods market. Mr. Tatum is survived by a brother who is senior member of Tatum, Penkham & Grey, and three sisters.

Wm. H. Hoffman

William H. Hoffman, of the firm of Arnold, Hoffman & Co., importers of and dealers in dyestuffs and chemicals, with offices in Providence and other cities, died suddenly April 21 at his home in Barrington, R. I. Although only 49 years old at the time of his death, Mr. Hoffman had worked his way up from an obscure clerk with Mason, Chapin Co., to a partnership in the present company, which succeeded the former concern. Mr. Hoffman was a public-spirited man and was active in securing many improvements for his home town. A widow and two sons survive.

George N. Schofield

George N. Schofield, member of the firm of Schofield, Mason & Co., manufacturers of carpets, Philadelphia, died on Saturday, April 22, after a protracted illness. Mr. Schofield was 58 years old, having been born in Manayunk, Philadelphia, in 1858. As a young man he entered the woolen yarn industry with his father. Later he took up the manufacture of carpets, and eventually was a member of the firm of Schofield, Mason & Co. for many years. He was very active in the Masonic order. He is survived by a widow and daughter.

Henry J. Brown

Henry J. Brown, a member of Davis & Brown Woolen Co., which operates mills at Uxbridge, Mass., and East Killingly, Conn., died in Worcester in his 67th year. Mr. Brown entered the woolen manufacturing business with his partner, Otis Davis, in Danielson, Conn., many years ago, and was actively engaged in the woolen industry until his death. He was born in England, and came to this country when a young man. He is survived by his widow and one daughter.

Bigelow-Hartford Plant Sale Denied

A rumor was current this week that the Bigelow-Hartford plant in Lowell, which is closed down, had been sold to the American Can Co. At the New York office of the Bigelow-Hartford Co. it was said that nothing was known of such a sale, although it was admitted the plant was on the market.

Carpet Company Withdraws Line

The Firth Carpet Co. has withdrawn from sale all lines of Empire tapestry fabrics. Eureka fabrics were withdrawn some time ago. It is announced that both these fabrics will be on sale again at the company's opening May 1.

TEXTILE EXHIBIT

(*Continued from page 39*)

ing the available supply of dyestuffs, giving due consideration to both the natural and artificial dyes.

HINDRANCES TO CO-OPERATION

Mr. Chapin's suggestion regarding the benefits that might accrue from co-operative work by a majority of manufacturers was only one of a similar character broached at the convention, and it must be regarded as characteristic of the state of mind or of opinion in the textile industry, that none of these suggestions seemed to stimulate responsive thought. On previous occasions it has been suggested that the only certain method of building up a permanent export trade would be through some method of co-operative exploitation and selling, but while some selling agents and manufacturers acknowledge the merit of the suggestion, there is no evidence that it is likely to stimulate action. It may be that the only thing lacking is proper leadership, or it may be that, in the case of export trade, the industry is apathetic and is too busily employed upon domestic business to give much thought to the development of broader and more permanent export markets. Former President Duncan had previously exploited the idea of a larger and more truly representative national organization of textile manufacturers, but it seems evident that much educational work will have to be done before the trade is alive to the need of such an organization. The so-called National Textile Council, organized several years ago, was a step in this direction, but it has failed to arouse anything like enthusiastic co-operation, and it is interesting to note that no meeting of the Council was held in connection with the Boston convention. Former President Duncan and other manufacturers have exerted themselves to demonstrate the need and to organize open price associations in various branches of the textile industry, but the two or three small associations of this character already started have encountered much opposition, and their increasing success has failed to stimulate any broad movement along similar lines. A few farsighted manufacturers are alive to the important results that would accrue to the industry from the establishment of laboratories for systematic research work, but they have thus far failed to arouse anything like enthusiastic response. Were such laboratories in operation it is certain that the resolution proposing a standard regain of 8½ per cent. for cotton and yarns would not only have been adopted by the organization, but would have been backed up by the appointment of a committee whose duty it should be to work for the general adoption of such a standard as the basis of trade.

In the opinion of a number of leading manufacturers who were interviewed at the Boston convention, the situation as outlined proves that the textile industry is still strongly influenced by ancient tradition and custom, compounded by personal and trade jealousies, all of which tend to make it extremely difficult to secure the hearty co-operation of important trade interests in constructive association work. In their opinion the various trade associations will find it impossible to become leaders in progressive thought and action until they are able to overcome the narrow views, jealousies and prejudices of individuals and corporations.

Present at Convention

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H. Fish, 85 Devonshire St., P. O. Box 1593, Boston, Mass. William D. Hartshorne, Methuen, Mass. Robert W. Neff, Boston. Charles J. O'Malley, Prest. O'Malley Advertising and Selling Co., Boston. Alexander S. West, U. S. Gutta Percha Paint Co., Providence, R. I. Charles F. Young, Treas. Tremont and Suffolk Mills, Boston, Mass.

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John S. Lawrence, Lawrence & Co., Boston. Robert A. Leeson, Universal Winding Co., Boston. Stephen C. Lowe, Whitin Machine Works, Boston, Mass. R. M. Mackintosh, L. H. A. Schwartz & Co., Boston. Ernest T. Manson, Edward H. Best & Co., Boston. Edwin H. Marble, Curtis & Marble Machine Co., Worcester, Mass. John W. Mayor, Thomas Mayor & Son, Providence, R. I. William McKinley, Jr., W. H. Langley & Co., New York. John S. Merchant, Standard Mill Supply Co., Providence, R. I. Charles M. Mumford, Lockwood, Greene & Co., Newton Centre, Mass. William R. Noone, Jos. Noone's Sons Co., Boston. Sidney B. Paine, General Electric Co., Boston. Frederick W. Parks, G. M. Parks Co., Fitchburg, Mass.

Frank W. Reynolds, Lockwood, Greene & Co., Boston, Mass. E. A. Rusden, Textile Finishing Machinery Co., Providence, R. I. Dwight Seabury, Pawtucket, R. I. Lewis T. Shurtleff, Pairpoint Corporation, New Bedford, Mass. Charles P. Slocum, Corn Products Refining Co., Boston. Abbott P. Smith, Soule, Butler, Quissett and Kilburn Mills, New Bedford, Mass. Harry M. Smith, Standard Mill Supply Co., Providence, R. I. Joseph J. Smith, Wm. Firth, Boston. Wallace I. Stimpson, The Draper Co., Hopedale, Mass. James Strang, Saco-Lowell Shops, Boston. E. Beverly Walden, Corn Product Co., New York. Lettice R. Washburn, New Bedford, Mass. William F. White, Lowell Paper Tube Corp., Lowell, Mass.

S. B. Alexander, Jr., Charlotte, N. C. F. E. Atteaux, Boston. W. G. Ahern, Boston, Frederick W. Allen, Providence. F. W. Ancona, Philadelphia. S. W. Ayres, Boston. L. M. Brightman, New York. Robt. F. Bowe, selling agent, Greenville, S. C. J. H. Burghardt, Boston. G. H. Bridges, Providence. F. H. Burt. W. J. Balfour, New York. W. T. Brown, Fitchburg. C. G. Bancroft, Boston. Bertram D. Blaisdell. Wm. De Ford Beal. C. F. Bowe. S. W. Bridges, Boston.

M. F. Cole, Prest. Newnan, Ga. A. E. Crippen, Adams, Mass. G. E. Cheesman, Providence. A. B. Carter, Greenville, S. C. H. E. Crippen, Jr., Adams, Mass. W. H. Chase, Hopedale, Mass. Edward S. Chapin, Boston. A. W. Case, New York City. B. S. Cottrell, Fitchburg, Mass. C. H. Clark, Boston. W. S. Dean, Washington. Rogers W. Davis, Charlotte, N. C. W. S. Duell, Yardley, Pa. Frederic Dannerth, Hartford. Perry Dow, Manchester, N. H. F. C. Dumaine, Boston. A. I. Dalton. Chas. Dannerth. F. H. Elmore, Providence. Charles Ely, Boston, William E. Eddefson. E. H. Erhard, Readville, Mass.

R. A. Field, Supt. Newnan (Ga.) Cotton Mills. George Fish, Pawtucket. James Farrington, Providence. C. B. Finkle, New York. John E. Fitzpatrick, Philadelphia. Fred A. Flather, Boston, Robt. Farnham. E. G. Goulland, Boston. Jas. A. Greer, Charlotte. M. P. Glynn, Philadelphia. R. Greenwood, Philadelphia. H. J. Greene, Providence. Francis A. Goodhue, Philip A. Green, Boston. E. F. Garsed. T. E. Howard, Nashua, N. H. Gordon Hall, Boston. John Hill, Providence. Arthur W. Harris, Atlanta, Ga. Gordon Hall, Boston. D. M. Hill, Boston. M. Graham Houghton. G. W. Hyde. Arthur H. Hardy. P. D. Howe. C. Walker Heltzer, Providence. Clarence Hutton, Boston. C. E. Inches, Boston. C. Walker Jones. Philip Jamieson, Boston. R. H. Johnston.

James F. Kiley, Boston. S. W. Kirkland, Boston. Geo. S. Lapham, Boston. J. A. Lyle, New York. E. T. Lyle, Boston. H. D. Lord, Boston. H. G. Lord, Boston. John Montgomery, Woonsocket, R. I. W. H. Mills, Canton Junction, Mass. H. Fred Meyer, Canton Junction, Mass. W. A. Millet, Boston. H. T. Merriman, Providence. R. N. Mackay, Readville, Mass. Arnold Malone. S. C. McHenry, Ware, Mass. C. A. Meister, Newnan, Ga. H. L. Marsh, New York. D. P. Mahon, Boston. A. I. Mellin, Boston. S. H. Mildram, Boston. Robt. E. Naumburg, Boston. F. L. Nagle, Boston. A. R. Nagle, Boston.

C. Oches, Readville, Mass. A. Otterson, Boston. Thomas Prendegast, Boston. H. M. Parks, Fitchburg, Mass. Walter E. Parker. Amos L. Post, Buenos Aires, Argentina. S. A. R. E. Patterson, Hartford, Conn. S. B. Paine, Boston. John Pryor, Boston. James H. Porter, Macon, Ga. John A. Porter, Macon, Ga. H. W. Reed, Boston. John P. Reynolds, Jr., Boston. B. A. Rusden, Jr., Providence. Charles N. Robertson, Jr., Lonsdale, R. I. G. R. Ridgway, Philadelphia. Frank I. Rounds, Boston. Chip Robert, Atlanta, Ga. H. S. Redman, Taftville, Conn. H. W. Rice, Providence. J. B. Shaw, New York. Milton G. Smith, Pittsburgh. Elliot Stokes, Boston. J. D. Sullivan, Boston. Harry Steinberg, N. Y. Benjamin Soffee, Philadelphia. S. H. Souter, York, Pa. W. R. Sides, New York. Charles R. Smith, Paterson, N. J. S. H. Steele, Philadelphia. W. H. Sleeper, Boston.

Philip Thompson, Providence. N. P. Thompson, Providence. E. L. Tinkham, Hopedale, Mass. K. S. Tanner, Caroleen, N. C. Bernard W. Trafford. C. F. Underwood, Boston. Meyer William, Providence. James F. Wood, Boston. R. E. Wattles, Canton Junction, Mass. B. E. Willingham, Jr., Macon, Ga. Chas. B. Wiggin. Owen G. Wood, Herbert Wenderly. F. H. White, Charlotte, N. C. A. E. Willey. G. H. Waterman, Boston. George S. Barnum. The Bigelow Co., New Haven, Conn. Frederic A. Chase, National Ring Traveler Co., Providence, R. I.

G. B. Emmons, Emmons Loom Harness Co., Lawrence, Mass. Luther G. Goodrich, Barber-Colman Co., Boston. Henry Marsh, Atkinson, Haserick & Co., Boston. William F. Parish, The Texas Co., New York. Joseph J. Smith, Wm. Firth, Boston. Henry C. Spence, Metallic Drawing Roll Co., Indian Orchard, Mass. George F. Steele, General Electric Co., Boston. J. Henry Thorpe, U. S. Bobbin & Shuttle Co., Providence, R. I. Clement A. Wakefield, Saco-Lowell Shops, Biddeford, Me. Albert Walton, Fall River, Mass.

No Merino Wool Licenses

The Textile Alliance, Inc., is officially informed that it is not the intention, at any rate at present, to resume the licensing of merino wool from Great Britain.

Beaver Mills Incorporated

Announcement was made last week in this journal of the purchase of the Beaver mills plant of the Hoosac Cotton Mills, North Adams, Mass., by a new company to be known as the Beaver Mills. In addition to G. E. Huggins, president, and Charles M. Sears, vice-president and selling agent, it has been announced that Henry C. Dresser is to be second vice-president and that William M. Butler and George D. Gregory, in conjunction with the above officers, will comprise the board of directors. The capital of the new corporation has been reported at $500,000. A. H. McComb, until recently superintendent of the Martel Mfg. Co., Egan, Ga., will be in charge of the new plant. The Beaver Mills have been closed since 1910, coming into possession of the Hoosac Cotton Mills that year. Previous to that date they were operated by Gallup & Houghton of the Arnold Print Works, North Adams, Mass.

Purchases Kent Mills

The announcement is made that the Kent Manufacturing Co., recently incorporated in Pennsylvania, has concluded the purchase of the business and mills at Clifton Heights, Pa., formerly owned and operated by the Thomas Kent Manufacturing Co., and purchased at public sale on March 17 by Chas. J. Webb. This new corporation has also taken over and will operate the mills at Bedford City, Va., and also the mills at Burmont, Pa., formerly owned and operated by Henry T. Kent. The new corporation is capitalized at $600,000, including $300,000 worth of preferred stock and $300,000 in common stock. Henry T. Kent is the president of the concern; Everett L. Kent, vice-president, and Jos. H. Parvin, treasurer. The consolidated plants, it is stated, will be operated as heretofore, although on a larger and more comprehensive scale.

German Colors for Stamps

WASHINGTON, April 24.—Apropos of the dyestuff situation readers of the TEXTILE WORLD JOURNAL will probably be interested to know that the Bureau of Engraving & Printing, here is expecting a shipment of German dyes of some 30,000 or 40,000 pounds. The shipment is now on the high seas according to reports. The official at the Bureau, who informed your correspondent of the fact is authority for the statement that the Bureau is paying 34c. per pound for the dyes as aganst 23c. per pound before the war. The Bureau is also expecting, in about six weeks, another shipment of some 20,000 pounds. This will make three shipments in all of German dyes that have been received by the Bureau since the embargo.

Serious Auto Accident

In a recent automobile accident, James M. Thompson, treasurer of the Thompson Worsted Co., Chester, Pa., and his brother, Walter E. Thompson, president of the company, were seriously injured. Walter E. Thompson suffered injuries to the shoulders and back, and internal injuries, while James M. Thompson sustained lacerations of the right leg and head and contusions of the body. His daughter is suffering with concussion of the brain.

Chemists to Meet in Cleveland

J. C. Olsen, secretary of the American Institute of Chemical Engineers, Cooper Union, N. Y., is sending out notices of the eighth semi-annual meeting of the American Institute of Chemical Engineers to be held in Cleveland, O., June 14 to 17.

SWEATER MFRS. MEET

Phila. Mfrs. Discuss Uncertainty of Colors and Other Matters

A meeting of the Philadelphia Sweater Manufacturers Association, which recently became affiliated with the National Association of Hosiery and Underwear Manufacturers, was held at the Manufacturers Club, Philadelphia, on Wednesday evening, April 26. The meeting was very well attended and keen interest taken in the discussion of various matters brought before them, as relating to present business conditions. The critical situation caused by the scarcity of dyestuffs, and the present strike among the local dyers has occasioned much concern in this trade, and manufacturers are endeavoring to meet conditions as best they may in order to take care of their customers. In view of the difficulty in getting yarns dyed one prominent mill established its own dye plant near the city in order to take care of its needs, but they are having now serious difficulty in securing necessary colors. As a result of this situation it was unanimously decided the following letter should be sent to all sweater buyers in order to set forth the present conditions of the trade:

"To SWEATER BUYERS:—

"We firmly believe that a large percentage of the dye and yarns being used for next fall and winter will measure up to former standard, so far as reliability of colors is concerned. Nevertheless the almost complete cessation of imports of coal-tar dyes, the rapid exhaustion of domestic supplies, and the inadequacy of American production have caused dyers and spinners to refuse color guarantees for the fall and winter season.

"Therefore, it follows that sweater manufacturers cannot give any general color guarantee of their products for the coming season, or until conditions become normal.

"Consumers must learn to accept the situation as one over which no mill, manufacturer or retailer can exercise control.

"Surely the American public can be trusted to meet this condition cheerfully if everybody is frank about it.

"*Respectfully,*

"PHILA. SWEATER MFRS. ASSOCIATION,

"H. L. SCHINDLER, Secretary."

The association is also undertaking preliminary work in line with the activities of the National Association, and in this connection they decided to take steps to ascertain the average cost for each operation entering into the manufacture of sweaters for the benefit of their members.

Among those present at the meeting were Fred'k Mayer, Penna. Knitting Mills, president; John E. Pike, vice-president; A. Bergman, treasurer; H. L. Schindler, Diamond Knitting Mills, secretary; H. J. Auerbach, Pilot Knitting Mills; Jos. Haber, Army Knitting Mils; David Frankel, Union Knitting Mills of Penna.; L. Friedman, Friedman Knitting Mills; E. Frimmel, The Phila. Knitting Mills; J. L. Rubin, United Knitting Co.; Morris Starrels; Mr. Feld, Novelty Knitting Mills; C. B. Carter, secretary National Association of Hosiery and Underwear Manufacturers; R. L. P. Reifsneider, National Association of Hosiery and Underwear Manufacturers.

UNDERWEAR TRADE NOTE

The line of men's ribbed union suits produced by the La Tosca Knitting Co., Utica, N. Y., is to be sold through Barnes, McGoey & Ely, beginning with the season of spring, 1917. Samples for that season will be shown by that firm within the next few weeks.

Fall River Print Cloth Market

FALL RIVER, MASS., April 28.—Manufacturers of print cloth have been slow sellers this week on account of the uncertainty on the wage question brought about by the operatives' insistence on the grant of 10 per cent. They did not care to obligate themselves into the performance of something which they might be prevented from executing without loss. Such business as was accepted was restricted in styles and periods as a consequence. It involves about 145,000 pieces as calculated to-day, with deliveries within two or three months. In the fine goods division there has been no change owing to the fact that it is not easy for mills to accept orders for near forwarding for anything inasmuch as most of their machinery is tied up until October.

Quotations are as follows: 4¼c. for 28-inch 64s; 4c. for 28-inch 64x60s; 3⅞c. for 27-inch 64x60s; 3¾c. for 27-inch 56s; 5¾c. for 38½-inch 64s; 6½c. for 39-inch 68 x 72s.

New Spinning Mill Planned

A report comes from Peterboro, Ont., that plans have been completed for the erection in that city of a spinning plant by the Brinton Carpet Co., Ltd., with mills in Peterboro, Ont., and Kidderminster, Worcestershire, Eng. In this plant the company plans to manufacture yarns for its Wilton, Axminster and Brussels carpets. As this company has no New York office the report cannot be verified.

Will Show Carpet Samples

Stephen Sanford & Sons, Inc., have announced that they will show their fall samples May 1, and that all items remaining unfilled on April 29 will be cancelled on that date.

Alexander Smith & Sons Carpet Co. will show certain new samples on May 1, but will make no announcement relative to a formal opening.

STATISTICAL DATA

FLUCTUATIONS OF FUTURES.

Option.	Closed—Apr. 24.	High.	Low.	For week.— Apr. 27.	Closed Chge.
May	11.83	11.98	11.76	11.93	+.10
June	11.92	....	....	12.00	+.08
July	12.01	12.14	11.90	12.07	+.06
Aug.	12.09	12.22	12.12	12.15	+.06
Sept.	12.16	....	....	12.18	+.02
Oct.	12.22	12.32	12.10	12.23	+.01
Nov.	12.28	12.26	12.25	12.29	+.01
Dec.	12.38	12.48	12.28	12.40	+.02
Jan.	12.45	12.57	12.37	12.47	+.02
Feb.	12.53	....	....	12.55	+.02
March	12.61	12.74	12.53	12.63	+.02

SPOT FLUCTUATIONS FOR WEEK (MIDDLING).

	New York.	New Orleans.	Liverpool.
Friday, April 21	Holid'y	Holid'y	Holid'y
Saturday, April 22	Holid'y	Holid'y	Holid'y
Monday, April 24	12.05c.	11.88c.	Holid'y
Tuesday, April 25	12.15c.	11.88c.	7.82d.
Wednesday, April 26	12.10c.	11.88c.	7.85d.
Thursday, April 27	12.15c.	11.88c.	7.87d.

SPOT QUOTATIONS AND STOCKS.

	Spot prices.	Stocks.— This week.	Last year.
New York	12.15c.	248,027	206,430
Galveston	12.35c.	291,626	401,123
New Orleans	11.88c.	296,151	333,451
Mobile	11.81c.	26,855	24,783
Savannah	11⅞c.	143,936	134,939
Charleston	11⅝c.	68,235	66,937
Wilmington	11½c.	62,909	57,491
Norfolk	11.88c.	98,605	79,961
Baltimore	11⅞c.	6,350	3,277
Augusta	11.75c.	120,457	116,450
Memphis	12c.	155,369	149,472
St. Louis	12c.	19,716	32,723
Houston	12.30c.	94,259	125,069
Little Rock	12.31c.	30,399	26,954

COMPARATIVE CROP STATISTICS.

	1916.	1915.
Receipts for week	88,529	93,809
Exports for week:		
To Great Britain	44,189	71,469
To Continent	51,582	26,016
To France	18,305	14,888
To Japan	8,937	2,405
To Mexico	.....	.....
Visible supply, U. S. and Europe	5,336,453	6,773,554
Receipts for season	6,497,896	9,956,579
Exports for season:		
To Great Britain	2,088,193	3,222,944
To Continent	1,271,282	2,981,810
To France	694,548	541,173
To Japan	344,553	374,841
To Mexico	18,092	31,068
Total stock, all U. S. ports	1,268,948	1,419,306

FALL RIVER WAGE DISPUTE

Manufacturers Grant Operatives' Demand for 10 Per Cent. Advance

FALL RIVER, MASS., April 28.—No strike is to arrest the manufacturing processes in this city. The action of the operatives' unions on Wednesday night portended such a calamity if the mill men had not heaped coals of fire on the heads of the leaders by advancing their offer of last week to a full 10 per cent. The treasurers met on Thursday afternoon, and after deliberating for two hours decided that as a measure of peace and not as a concession to justice, they would meet the unpleasant situation created by the workers and avert trouble. Nobody has more sorrowful recollections of the discord which culminated in the six months' battle in 1904-05 than the wage-earners, and yet they appeared to be prepared to undergo the ordeal a second time. Some treasurers were disposed to try the issue of the ability of the corporations to stand the new schedule as demanded and the continuance of profitable business, not because any of them lacked public spirit, but as a measure of self-protection. Conservative opinion prevailed, however, and the motion in favor of meeting the operatives' wishes was carried.

Manufacturers declare that there is no evidence available that the corporations were getting much more than actual costs from orders booked last year and filled since the first of January. Most of the contracts put through on the basis of the increased figures have not begun to be operative as producers of profits. To emphasize the claim of injustice on the part of the organizations, the remonstrants say that abnormal profits are purely imaginary. Only four are paying more than 6 per cent., while the list of non-payers and of those on the dividend basis of 1 per cent. is a large one.

Normalair Co. Organization

Under the name of Dicks, Slosson Co., Inc., a firm has been organized, with offices at 302 Broadway, New York, for selling Normalair humidifiers in this territory, while branch offices are soon to be opened in New England and Philadelphia. The Normalair Co. plant is at Winston-Salem, N. C. A practical and efficient humidifier of the fine-spray type is manufactured. Robert P. Dicks is president and James S. Slosson vice-president of the new company.

Opens Boston Office

The Turner Construction Co. opened the beginning of this month a branch office at 45 Milk Street, Boston, from which all the New England business of the company will be handled. It will be in charge of W. R. Sides, district contract manager, and A. C. Tozzer, general superintendent.

Banding Company to Move

The American Textile Banding Co., Inc., formerly at Third and Moore Sts., Philadelphia, has removed to Hunting Park Ave. and Marshall St.

COTTON GOODS TRADE NOTES

Taylor, Clapp & Co. have advanced Lonsdale cambric, muslin, and nainsook to 12c. a yard.

It has been announced that after May 1 the Western Dry Goods Co., Seattle, jobbers, will be represented in the New York market by White & Pardee, 75 Leonard Street.

New Mill Enterprises, Enlargements and Improvements, Etc.

COTTON

MAIDEN, N. C. Carolina Cotton Mills have been incorporated by B. M. Spratt, Jr., W. L. Heffner, Jr., and J. S. Campbell. This company is capitalized at $100,000.

GASTONIA, N. C. The Osceola Mills, Inc., capital stock $200,000, subscribed $40,000, have been incorporated by W. F. Rankin, R. G. Barker, A. E. Myers, L. L. Robertson, S. N. Bryce, A. B. Moore, and O. F. Mason. Mr. Rankin was until recently president and treasurer of the Ozark Cotton Mills and was reported in these columns last week as contemplating the erection of a new cotton yarn mill in that city.

GASTONIA, N. C. Groves Mill has been incorporated by L. F. Groves, H. H. Groves, L. L. Jenkins, J. R. Withers and W. C. Withers. This company intends to build a mill for equipment with 12,000 spindles and accompanying machinery. Its incorporators are interested in other established and successful cotton manufacturing plants.

RUTHERFORDTON, N. C. S. B. Tanner and K. S. Tanner are preparing to build a factory for cotton yarns. They plan to construct a 250 x 75 foot mill and equip it with 5,440 spinning spindles, 3,168 twister spindles, etc.

SALISBURY, N. C. Marsh Cotton Mills, capitalization $50,000, have been incorporated by T. B. Marsh, Sr., T. B. Marsh, Jr., and F. J. Murdoch. This company will build a 118 x 40 foot brick construction mill costing $3,000 and install 50 looms with electric power drive costing $14,000.

NORTH ADAMS, MASS. Incorporation papers have been filed by the Beaver Mills Co., the name under which the Beaver mills plant of the Hoosac Cotton Mills, recently purchased by new interests, is to operate. The company is capitalized at $500,000 and its officers are: G. E. Huggins, president; and Charles M. Sears and Henry T. Dresser, vice-presidents. The officers with *William M. Butler and George D.* Gregory will comprise the board of directors.

*COATICOOK, QUE., CANADA. E. F. Tomkins, manager of Belding, Paul, Corticelli, Ltd., confirms recent report to the effect that the plant has been increased approximately 30 per cent. All kinds of braids and woven narrow fabrics are manufactured with an equipment, which previous to the enlargement was 30 narrow looms, and 250 braiders. The concern is now on the market for the following: belting, belt lacing machines, bleaching kiers, bleaching machinery, 100 horsepower boiler, braiding machinery, cotton softeners, counting machines, dyehouse cans, dyeing machinery, dyestuffs and chemicals, electric motors, fire hydrants, friction clutches, friction cones, looms for narrow fabrics, mechanical draft, raw hide gears, second hand machinery and variable speed transmission.

*STOUGHTON, MASS. The J. W. Wood Elastic Web Co., manufacturer of elastic webs and cords, advises that it expects to install a quantity of new machinery, the exact amount of which has not yet been determined. An addition is to be built to the plant which will approximately double the floor space operated, it has been reported.

CONCORD, N. C. Capital stock of the Locke Cotton Mills Co., is reported to have been increased to provide for enlargements at the plant. The following officers have been elected by the stockholders and directors: W. A. Erwin, president; George W. Watts, vice-president; T. V. Terrell, secretary and treasurer. It is understood that Mr. Terrell will have charge of the plant, coming from the position of manager of the No. 3 mill of the Erwin Cotton Mills Co. at Cooleemee, N. C. J. Locke Erwin, former president and treasurer of the Concord mill, is reported as planning to enter the yarn commission business in New York or Philadelphia.

ROCKINGHAM, N. C. Steele's Mills stockholders have decided upon plant increases to cost probably $400,000. This increase will be provided by constructing a weave shed of sufficient dimensions to accommodate 1,000 looms, 400 looms to be the initial weaving installation in this new structure. Accompanying the looms there will be installed 17,000 spindles. Engineers will soon determine details. This company manufactures print cloth and is at present operating 23,000 spindles with 600 looms.

STATESVILLE, N. C. Statesville Cotton Mills directors have decided upon an issue of $50,000 additional preferred stock for the purpose of adding to their plant's equipment for spinning cotton yarns. This additional equipment will be new and has been ordered. It will comprise 3,200 spindles with accompanying machinery, all of which is beginning to be received at the mill.

WILLIMANTIC, CONN. Local rumor states that a building will be erected by the Willimantic Mills of the American Thread Co. between the No. 1 mill and what is known as the Spool Shop, the building to be used for storage purposes.

LA GRANGE, GA. Hillside Cotton Mills will build a weave shed addition and the plans are being prepared by the Dallis-Robert Company of Atlanta.

*CONCORD JUNCTION, MASS. R. B. Moore, president and general manager of the Moore & Burgess Webbing Co., South Acton, Mass., advises that although the deal for the removal of the company's plant to Concord Junction *has not yet been completed, it will prob*ably go through this week. The company manufactures non-elastic webbings, cotton, silk and mercerized on 20 looms and one of the reasons for the proposed removal is a desire to enlarge the plant which is impossible at the present location. Local interests at Concord Junction have offered a number of inducements to the company. It is understood that they will erect a one-story building on the site immediately adjoining the New York, New Haven & Hartford Railroad yards to be leased to the Moore & Burgess Co. for a period of ten years with the privilege of buying.

*FALL RIVER, MASS. Recent incorporation of the Westport Manufacturing Co. with a capital stock of $600,000 is merely an incorporation of the company of the same name which has been doing business as a partnership since 1854. Officers have been elected as follows: William C. Trafford, president; H. L. Trafford, treasurer; A. W. Lewis, agent and buyer; Philip F. Simmons, superintendent. The plant is equipped with 5,000 ring and mule spindles and manufactures from 1⅛s to 4s yarns and wrapping twines, mop yarns, carpet warps, miners' and torch wicking and calking cotton.

*ATLANTA, GA. Samuel A. Carter, recently reported as considering building an addition to the Gate City Cotton Mills of which he is president, advises that there is no truth in the report so far as an immediate extension is concerned. The product of 10s. to 24s. hosiery yarns is sold up to Oct. 1, 1917, and it is, of course, hoped ultimately to enlarge.

** Indicates mention of project in a previous issue.*

WOOL

COLUMBIA CITY, IND. Capital stock of the Columbia Woolen Mills has been increased from $95,000 to $115,000. Fancy cassimeres are manufactured and the concern was recently mentioned as installing new carding and spinning machinery.

*LAWRENCE, MASS. George E. Kunhardt, manufacturer of men's wear, woolen and worsted fabrics, advises that new equipment to be installed in the addition to be built to the plant will consist solely of wool cards and spindles. There are at present in operation 11 sets of cards which have been run in the main on a full time day and night schedule. It is planned to install 20 sets of cards, all new, with accompanying spinning, practically all new, to take the place of old machinery and to enable carding and spinning work to be confined to a day schedule. The addition does not represent an increase in output, the number of looms operated, 220 broad looms, remaining unchanged. Mr. Kunhardt confirms the reported dimensions for the new mill, which will be 322 x 94 feet, five stories high, of brick and steel construction, to cost approximately $140,000. Charles T. Main is the architect-engineer and L. E. Locke the contractor.

DARBY, PA. Purchase of a large plot of land has been made by the Griswold Worsted Co., it is reported, the price named being $28,000. According to local report, tentative plans have been prepared for the erection of a three-story addition to the plant to be built on this site. The company, which manufactures mohair and worsted yarns, now has in process of construction a large addition, which it is understood will be used partly for storage and partly for manufacturing purposes.

PHILADELPHIA, PA. Contract has been awarded by the Prudential Worsted Mills, manufacturers of worsted goods, for the erecton of a one-story weave *shed of brick, with saw tooth roof con*struction, Orthodox and Large Streets, Frankford.

PHILADELPHIA, PA. Archibald Holmes & Son, Inc., manufacturing carpets, have *purchased the plant of the Dresden Car*pet Co., Ontario and D Sts. This plant they will operate as a branch with their present plant for the time being.

BRIDGEPORT, PA. J. Charles Nice, Jr., who, as noted elsewhere, has withdrawn from the firm of Kenworthy & Nice, woolen yarns, Manayunk, Phila., has leased the woolen yarn plant of William Barber, which has been idle for some time past. He will operate this mill under the name of the Nice Woolen Yarn Mill.

LEWISBURG, PA. Announcement has been made of the proposed reopening of the Lewisburg Woolen Mill, those *interested being reported as having large* orders for army blankets from abroad. The plant, which has been idle for some time, formerly manufactured woolen cassimeres and at last report was equipped with 3 sets of cards, 1 picker, 17 looms and 1,268 mule spindles. W. S. Halfpenny was formerly the manager of the mill.

ELLENSBURG, WASH. The plant of the Ellensburg Woolen Mills has been leased by an eastern concern, according to report, which will start up the mill on the manufacture of army blankets for a foreign power. Officials of the mills are said to have confirmed this report, but the names of the new owners have not been made public. At last report the plant operated on blankets, flannels, cassimeres and mackinaws, and had 3 sets of cards, 15 looms, etc.

MILL PERSONALS

Charles J. Eldridge has accepted a position as overseer of finishing for the Mystic Woolen Co., Hope Valley, R. I., succeeding J. Frank Hamblen.

William Shea, second hand in the mule spinning department for the Warren Manufacturing Co., Lowell, Mass., has severed his connection with that company.

Herbert Trask has been appointed overseer of dressing for the Ardmore Mills, Yantic, Conn. He was formerly employed at the Waskanut Mill, Farnumsville, Mass., as dresser tender.

Lee Lownds, assisant manager of the Bridgeport (Conn.) Elastic Fibre Co., has severed his connection with that company to accept a similar position with the Everlastik, Inc., which is operated by the Hub Gore Makers, Brockton, Mass. On his resignation he was presented with a gold watch, chain and fob by the help in his employ at Bridgeport.

Samuel Mellon has accepted a position as overseer of carding at the Hillsboro (N. H.) Woolen Mill Co. He comes from the Beoli Mills, Fitchburg, Mass.

Chester W. Carpenter, overseer of the carding department for the Nanchaug (Mass.) Co., has resigned his position with that company to accept one as superintendent for The Edwin Bartlett Co., No. Oxford, Mass.

Charles Salmon, for the past 5 years overseer of spinning for the Uxbridge (Mass.) Worsted Co., has resigned his position with that company.

Oscar P. Kasper has been appointed assistant superintendent of the Berkshire Woolen & Worsted Co., Pittsfield, Mass. He was formerly assistant designer at this mill.

William Poppineau has accepted a *position as overseer of carding for the* Brampton Woolen Co., Penacook, N. H., succeeding Martin Harding.

John Mills has accepted a position as overseer of weaving for the Blackstone (Mass.) Manufacturng Co. Mr. Mills was formerly employed at the Dwight Manufacturing Co., Chicopee, Mass.

N. H. Allard, second hand in the carding department for the Contoocook Mills, Hillsboro, N. H., has resigned his position with that company.

James T. Patterson has accepted a *position as overseer of finishing for the* Sayles & Jenks Manufacturing Co., Warren, Mass. He comes from Hillsboro, N. H.

Horace St. Mary has accepted a posi*tion as overseer of spinning at the No. 1* mill of the Acushnet Mill Corporation, New Bedford, Mass., succeeding John Wenchel.

Alfred La Flam has accepted a position as overseer of combing for the West Boylston Manufacturing Co., Easthampton, Mass. He is to have *charge of 284 Nesbit combers. He has* been second hand in the carding department for the Fort Dummer Mills, Brattleboro, Vt., for the past 18 months. Upon his resignation from that company he was presented with a purse of gold in appreciation of his service.

Arthur Blain, for the past 4 years overseer of the spinning department for the Stark Mills, Manchester, N. H., has resigned his position with that company. He was tendered a complimentary dinner at the Orington Hotel on his resignation.

Humphrey T. Joy, for the past 33 years overseer of the dressing department for the Dwight Manufacturing Co., Chicopee, Mass., has tendered his resignation to the company.

New Mill Enterprises, Enlargements and Improvements, Etc.

KNIT

*Jonesboro, Ga. Jonesboro Manufacturing Co., mentioned some weeks ago, has determined final plans for its mill. It will build a 100 x 50 foot brick structure for mill proper and a wood structure for the dyehouse. The initial installation of machinery will be 32 knitters, 7 ribbers, 5 loopers, etc., for manufacturing hosiery. T. W. Woodhaus of Villa Rica, Ga., is the architect-engineer.

Laurium, Mich. Stephen Stiglich and Joseph W. Schneller are reported to have organized a concern to be known as the S. & S. Knitting Co., which will start operations here about May 1 on the manufacture of woolen hosiery.

Camillus, N. Y. Articles of incorporation have been filed by the Middlesex Knitting Co., Inc., of Camillus, which has a capital stock of $20,000 and plans to manufacture hosiery and underwear. Incorporators are: Walter F. Keefer, Martin E. Corbett and William C. Jones. Mr. Keefer now operates a plant at Camillus on the manufacture of men's and children's ribbed underwear and sweater coats under his own name and Keefer & Maxwell are the proprietors of the Central Knitting Works of the same place, manufacturing gloves, mittens, toques, fancy knit goods, etc.

*Allentown, Pa. J. Fink Thompson, recently reported as interested in the location of a plant here to manufacture underwear, advises that he is trying to put up such a plant, but that its establishment is not certain.

Knoxville, Tenn. Tennessee Mills, capitalized at $100,000, has been incorporated to establish a plant for knitting underwear. This company has taken possession of a building which will be remodeled to accommodate the machinery, for which contracts have been awarded. C. L. Leonhardt, S. W. Duggan, T. A. Wright, C. M. Tyson and Irvin S. Saxton incorporated the new company.

Etowah, Ala. Work is reported to have been started on the foundation of a new knitting mill to be erected here, W. F. Stowers being the contractor in charge. It is stated that operations are to be started before September, the plant to employ about 150.

Framingham, Mass. A building on Eames Street, formerly used for the manufacture of underwear, is reported to have been acquired by a company which plans to start the production of a similar line of goods in the near future. Operatives for the mill are now being secured by representatives of the company, whose identity is not disclosed.

Hamilton, Ont., Canada. Arrangements have been completed for the construction of a large new mill to be operated as a branch of the Mercury Mills, Ltd., manufacturers of women's and children's hosiery, seamless and full fashioned, and underwear. Charles T. Main of Boston is the architect-engineer in charge of enlargement. Although details have not been made public, H. D. Smith, secretary-treasurer of the concern, announces that a very considerable amount of new machinery will be added, final decision on the character of which has been made.

Sherburne, N. Y. An addition 48 x 10 feet is being built to the mill of the Canasawacta Knitting Co., manufacturer of men's and children's ribbed underwear and union suits and bathing suits.

Amsterdam, N. Y. The Morris Mills, manufacturers of men's flat and ribbed underwear, are adding 5,000 cotton spindles to their plant.

Johnstown, N. Y. Having outgrown its present plant at 6 Spring Street, the Wessell Knitting Co., manufacturer of knitted gloves and glove linings, will move about May 1 to the building at 8-10-12 North Perry Street where there is approximately three times as much floor space as the former plant contained. A quantity of new machinery will be installed and is expected to be in operation by June 1.

*Oswego, N. Y. Contracts have been let by the Hayes Knitting Co. for the construction of its new plant on land recently purchased at the corner of West Second and Schuyler Streets. The main mill will be 120 feet long by 52 feet wide, and there will be an 89 x 32 foot boiler and engine room. The plant will be three stories high, of concrete and steel construction and it will be built so as to allow for future expansion. The cost is reported as between $30,000 and $40,000. Men's ribbed and flat underwear is manufactured in the present plant, which had an equipment at last report of 62 knitting and 90 sewing machines.

High Point, N. C. High Point Hosiery Mills have plans and specifications for building two additions. One will be an annex to the mill and will be three stories high, costing $10,000. The other will be four stories high and costing $10,000. Both buildings of brick construction.

*Miffintown, Pa. Confirmation has been received from the Juniata Hosiery Mills of the addition of a 50 x 20 foot room to their plant which will provide for the installation of 12 new machines and for the employment of 12 additional operatives. There are at present 31 knitting machines and 10 sewing machines in operation at the mill, which employs 56 operatives.

Spring City, Pa. Contract for the erection of an addition to its plant, is reported to have been let by the Century Knitting Co., Inc., manufacturer of women's ribbed underwear and union suits, cotton, lisle and mercerized. Local equipment at last report consisted of 250 machines; a branch plant is maintained at Pottstown, Pa.

*Loudon, Tenn. Loudon Hosiery Mills, mentioned some weeks ago as contemplating construction of a 5,000 spindle yarn mill, will build a three-story 200 x 60 foot brick mill construction building costing $25,000. W. H. Sears of Chattanooga is preparing plans and specifications.

*Logan, Utah. Construction of a new two-story building being erected by the Union Knitting Mills Co. is expected to be completed by July 15. Manufacturing operations are to be started about Aug. 1 in the new mill, which will be located at the corner of Center and First Street West. The company is now on the market for the following equipment: Baskets, bobbins, a five horsepower boiler; cloth stretchers, cone winders, cutters for knit fabrics, electric fans, electric lighting apparatus, electric motors, humidifying apparatus, ironing and pressing machinery for knit goods, watchmen's clock and a winder. A present equipment of 18 knitting machines and 56 sewing machines is operated and 5 new knitting machines will be installed upon the completion of the building now in process of construction. About 125 operatives will be employed.

Indicates mention of project in a previous issue.

SILK

*Summit, N. J. Plans for starting construction work on its plant about May 1 have been made by the Union Silk Co., 506-510 Morris Avenue, the incorporation of which with a capital stock of $14,000 was recently noted. The company expects to start manufacturing operations in October or November and is now on the market for a large variety of machinery and other equipment for its plant. Crepe, poplin, satin, messaline and taffeta will be manufactured and between 20 and 25 operatives will be employed at the start. There will be 28 looms, but spindles have not yet been contracted for and their number not decided upon. The plant will be operated by electric power and the product will be sold direct. Officers of the company are: Jacob G. Shahnazarian, president and buyer; Thomas Shahnazarian, treasurer; a superintendent has not yet been appointed. Included among the equipment, etc., on which the company would like to receive details as to prices, etc., are the following: Bobbins, brushes, castings, chemist's services, cloth cutting machinery, cloth stretchers, dobbies, dynamos, electric motors, fire brick, fireproof doors and windows, jacquards, lamps, looms, loom pickers, measuring and folding machine, mill supplies, oils, overseaming machines, paints, paper tubes, press, quillers, reed and harness, regulators, roofing, rope, roving cans, scale, second hand machinery, sewing machines, shuttles, silk machinery, soaps, spindles, spindle tubes, spools, spoolers, tanks, trade mark stamps, warping and beaming machinery, watchmen's clock, yarn testers, and silk and cotton yarn.

Hoboken, N. J. A plot of land has been purchased by the Hoboken Ribbon Co., manufacturer of plain and fancy ribbons, upon which will be erected a five-story 300 x 200 foot mill. The company at last report had an equipment at its Hoboken plant consisting of 150 ribbon looms. It operates 54 looms in a branch mill at Richmond, Va.

*Dorranceton, Pa. The name of the Frigerio Silk Co. recently purchased by new interests as noted, has been changed to the Dorranceton Silk Works and the capital stock increased to $650,000. An enlargement of 75,000 new spindles is to be made. Albert H. Bleckley is president and Henry J. Gigerich, treasurer of the new concern. It has purchased from the Duplan Silk Co. the latter's interest in the new branch mill at Dorranceton which started operations a short time ago. Temporary connection between the two plants has been made by a bridge, and plans are now being drawn for the erection of a new building to connect the two mills. When this construction is completed the resultant plant will be two stories high, 800 feet long by 200 feet wide.

West Pittston, Pa. William Dutton, president and treasurer of the Dutton Silk Throwing Co. of Duryea, Pa., is reported as planning the starting of a branch mill here, the product or size of which is not mentioned. At Duryea, Mr. Dutton operates 20,000 spindles.

Kingston, Pa. New officers of the Maltby Silk Mill, recently purchased by George R. Goebel, as noted, are George R. Goebel, president; and R. K. Goebel, treasurer. Mr. Goebel advises that it has not yet been decided just what to do in the way of building an addition, but that information on this score will be available June 1. It has been reported that the plant will be approximately doubled during the coming summer.

MISCELLANEOUS

Lockport, N. Y. The Empire State Linen Mills, Inc., have been organized here with the following officers: Fedor Schmidt, president; Alfred Schmidt secretary; Carl T. Tiedemann, treasurer. The plant is situated opposite the new freight terminal of the New York Central Railroad, which will insure adequate shipping facilities. The present building contains 10,000 square feet of floor space, 43 looms and a complete bleaching and finishing outfit. An addition will be built which will more than double the capacity, as from 50 to 75 looms will be added. The concern will specialize in the manufacture of plain and fancy huck, union and cotton towels and crashes. Charles R. Waentig, Jr., one of the incorporators, will be general manager of the company and Remy, Schmidt & Pleissner, 22 White Street, New York, will be the sole selling agents.

*Pawtucket, R. I. William Halliwell has organized a company under the name of the Halliwell Company, which has purchased the plant known as "the old Goff dye works," corner Front Street and Blackstone Avenue. The new company will mercerize, bleach and dye cotton yarns and expects to start operations about July 1. The plant is being completely overhauled and will be equipped throughout with latest types of machinery. The building is 298 feet long by 55 feet wide, one story and basement and an addition is now under construction, 36 by 48 feet, one story and basement. The capacity of the plant will be 25,000 to 30,000 pounds per day. Mr. Halliwell was connected with the Solway Dyeing and Textile Co. for 16 years, and previously with the Glenlyon Dye Works for 17 years, and is one of the most experienced men in this country on this line of work. Among the new equipment already contracted for is a filter plant to be installed by Hungerford & Terry, Philadelphia. Mr. Halliwell's plans have previously been mentioned in these columns.

Canonchet, R. I. Two of the local mills are reported to have been destroyed on April 21 by fire after having been struck by lightning, and a third was damaged. The mills of the Canonchet Line & Twine Co. and the Union Twine Co. were burned to the ground, it is stated, the stone and cement construction of the Canonchet Mills preventing their destruction. The Canonchet Line & Twine Co., manufactured cotton fish lines, steam tarred lines, etc., and had an equipment of 1,000 ring spindles operated by steam and water power. The Union Twine Co. manufactured lines, twines, maitre cord, etc.

*Millbury, Mass. The State supervisor of tax collections has instructed local authorities to advertise for sale the plant of the National Crash Manufacturing Co. because of unpaid taxes. The plant was sold at public auction last December to A. J. Batchelder of the Fidelity Trust Co., Boston, and it was reported at that time that the business would be reorganized and operations resumed. The plant at last report had an equipment of 5,000 spindles and 204 looms, which operated on linen toweling and upholstery crashes.

*Peoria, Ill. The Peoria Cordage Mill, manufacturer of sizing and mill cordage and binder twine and rope, advises that recent fire in its card room caused but slight damage and necessitated no replacements of machinery or other equipment. It was originally reported that the plant had been seriously damaged.

Cotton Manufacturers Hold Annual Meeting at Boston

THE success of holding the spring meeting of the National Association of Cotton Manufacturers at the Copley-Plaza last year naturally led the management to call the one hundredth meeting at the same place. There was some question as to what the effect would be of holding the meeting away from the Textile Exhibition at Mechanics Hall. In previous exhibition years the meetings have been held in Paul Revere Hall in the Mechanics Building, but there have been objections; if the machinery were in operation during the sessions the noise disturbed the meetings and the attractions of the exhibition diminished the attendance. If the machinery was stopped the exhibitors complained. The success of this meeting proves that neither the convention nor the exhibition suffered from the fact that it was held at the Copley-Plaza. The attendance of manufacturers at the convention sessions was unusually large, due not only to the interest in the program, but also to the exhibition which they would visit when the convention was not in session. The number of machinery and supply people in the corridors of the hotel was noticeably less than in other years, presumably for the reason that they remained at the exhibition building where they were anticipating the later visits of the manufacturers. The plan of holding the convention sessions in a centrally located hotel meets with general approval.

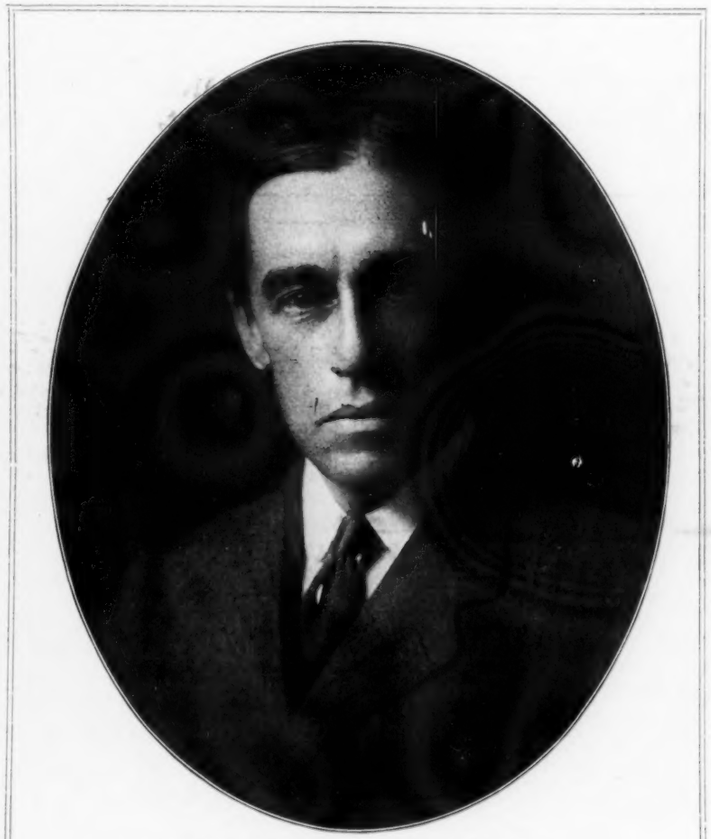
President Duncan received many well-deserved congratulations on his able annual address. While every thinking man has in mind the vital issues which are confronting not only this country but the whole world, no subject could have been better chosen than his able and eloquent plea to business men as American citizens to overlook in this crisis of the world's affairs the more petty issues of ordinary times and recall the high ideals for which America should stand. The grave attention that was paid to his address, interrupted by spontaneous applause, showed that his appeal to patriotism met with a ready response in the hearts of the cotton manufacturers assembled. President Duncan's addresses at the meetings of this association during his incumbency of office have been marked with a very high order of ability, and it is a tribute to his address on this occasion to say that it was his best. Mr. Vanderlip, who followed President Duncan, took special occasion to preface his remarks with an appreciation of the opportunity of listening to it. The address is printed in full on another page, and we commend it to the attention of every American manufacturer and business man.

Wednesday's Proceedings

When the meeting was called to order soon after 10.30, Secretary Charles H. Fish was called upon for the secretary's report. He stated that this had been partially prepared by the late secretary, C. J. H. Woodbury and that the report for the time subsequent to his death had been added, and the entire report would be printed in the Volume of Transactions. Some statistics of the membership were presented, showing a loss of about twenty members, the net figures at the present time including 4 honorary members, 21 life members, 646 active members, 182 associate members, making a total of 853.

In his capacity as treasurer, Mr. Fish gave a brief statement of the financial condition, which showed a comfortable balance of cash on hand, but an inexcusably large amount due from members in arrears. It was urged that the members give this their attention. Two scholarships at the New Bedford Textile School are now open. These are provided for by the fund established by William Firth and the Board of Government is ready to receive nominations for those who may wish to benefit by these scholarships.

The Committee on the Award of the Association Medal presented its report through Chairman Edwin H. Baker, who prefaced his remarks by a statement which received universal acquiescence. While their duty, he said, was to award the prize for the best paper contributed, they could not refrain from alluding to the high degree of merit of President Duncan's addresses. After speaking of the excellence of the many papers presented by specialists in different lines he awarded the medal to Dr. N. A. Cobb, of the Department of Agriculture, Washington, whose painstaking and intelligent research work, experiments, and investigations of the cotton fiber were deserving of appreciative recognition. It was regretted that Dr. Cobb was not present to receive the medal in person.



ALBERT F. BEMIS NEWLY ELECTED PRESIDENT

President Duncan presented to the association the engrossed and handsomely bound copy of the resolutions adopted by the American Cotton Manufacturers' Association at their Atlanta Convention, expressing their sympathy and regret in their sister association's loss through the death of its honored secretary, C. J. H. Woodbury. An oil painting of Dr. Woodbury, draped with American colors, hung above the president's platform. His presence has been so closely associated with these semi-annual meetings for many years that the meetings did not seem quite the same without him, and many expressions of sorrow and regret were heard.

In his able address Frank A. Vanderlip, president of the National City Bank, of New York, spoke a word of caution for the future; that we must not consider our present prosperity as permanent and must guard against the passing stimulus which tends to unsettle the normal basis of economic relations, otherwise it may prove more harmful than beneficial. In speaking of the efforts that are being made by his bank to build up foreign trade, he expressed disappointment at the small exports of cotton goods and said he believed that if the export trade could be cultivated in a co-operative manner by the formation of a Cotton Goods Export Association, it would have very beneficial results. What we lack in this country is unity of effort. Mr. Vanderlip's address is printed on another page and deserves careful reading.

At the conclusion of his remarks five minutes' recess was taken to permit those present to meet him.

When the meeting was again called to order, Edward S. Chapin presented an abstract of his paper on "Reconstruction in Dyeing," illustrated by samples of yarns dyed with natural dyestuffs from the exhbit of Marden, Orth & Hastings at the Textile Exhibition. Mr. Chapin pointed out the strides that have been made since he spoke last year in the adaptation of the natural dyestuffs for brighter shades and also the big strides that had been made in mechanical methods of handling them in the light of experience. He showed two samples of khaki, one dyed with natural colors which had stood the government tests much better than the other sample that had been dyed with direct artificial colors. He stated that the natural dyewood manufacturers had done all that could reasonably be expected of them up to the present time and if they were to extend their facilities, there should be guaranties in the way of time contracts from the manufacturers. He presented various suggestions for the relief of the dyestuff famine and the development of an American industry which would meet the demands in the future. He particularly urged a conference of manufacturers at which the dyestuff needs of the country should be considered.

Leonard W. Cronkhite followed with a very interesting paper on "The Indigo Phase of the Dyestuff Situation." His experience as an importer of large quantities of indigo from China and the Orient gave him best opportunity for first-hand information. So much has been printed and said about the importations of indigo from China, that the facts presented by Mr. Cronkhite were most timely and his assurance that there is no danger of an immediate indigo famine in this country for some months to come is comforting. He endorsed the preceding speaker's plea for co-operation among manufacturers to solve the present dyestuff problems and stated that if there had been more frankness and co-operation among them, they would not now be paying such fabulous prices for dyestuffs as had been forced upon them by the intervention of middle men and the avarice of some of their own number.

The next speaker, Herman A. Metz, president of the Farbwerke-Hoechst Co., was expected to tell the story of the reported release of 15,000 tons of German dyestuffs for importation to this country and he did not disappoint his audience. Mr. Metz spoke extemporaneously and said in part:

"Negotiations for the release of dyestuffs by the German Government have been pending for many months, through the American Embassy in Berlin. There was no possible chance of any release under the conditions of the permit granted by Great Britain a year ago. A modification of this permit was secured some months ago by which the shipments might be consigned to an American corporation representing all interests instead of to an individual and a combination of textile organizations.

"After this concession from Great Britain had been obtained, negotiations were continued through Berlin without success. It was only about four weeks ago that the matter was taken up officially with Count von Bernstorff, the German Ambassador in Washington, and through his co-operation with the State Department, the sanction of the German Government is now obtained for the quantity which the original two cargoes contemplated, that is, about 15,000 tons. This would be approximately a six months' supply. It was pointed out to the authorities and Count von Bernstorff that the occasional release of small shipments would be merely an aggravation instead of a real help.

"What the American textile interests needed was the assurance of continued supplies for a definite period so that they might arrange their production and make contracts accordingly, and not be compelled to live practically from hand to mouth so far as dyestuffs are concerned during the coming season.

"It was for this reason that practically a six months' supply was released. It was also understood that this quantity, when it came forward, would not only contain such colors as

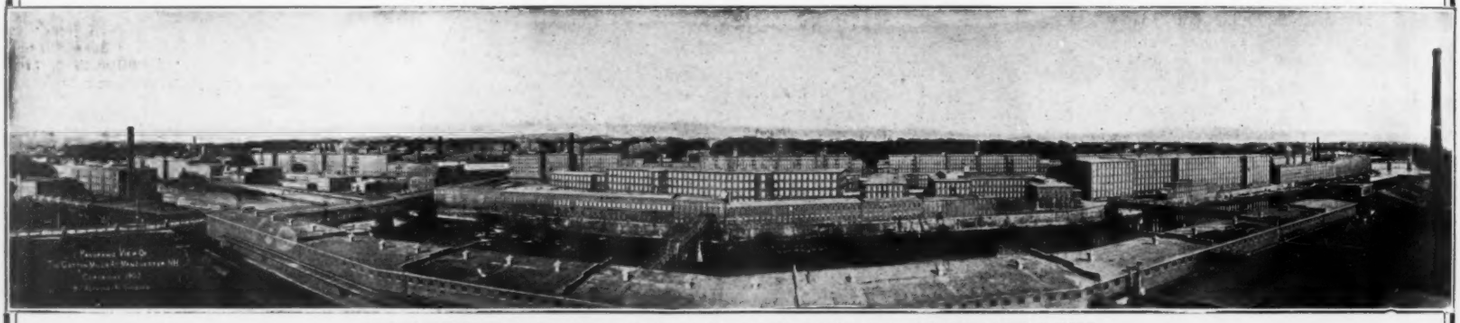
AMOSKEAG MFG. CO.

TRADE MARK

MANCHESTER - - NEW HAMPSHIRE

F. C. DUMAINE, Treasurer - - BOSTON

JARVIS and PRANKARD, Agents
34 Thomas Street, New York



VIEW OF THE AMOSKEAG MILLS ON EAST BANK OF MERRIMACK RIVER.

LOOMS	24,400	Pounds of Cotton Consumed per annum	54,600,000
SPINDLES	670,000	Pounds of Wool Consumed per annum	15,300,000
EMPLOYEES	16,500	Yards of Cloth Woven per annum	258,930,360

A F C Ginghams
Utility Ginghams
Romper Cloth
Staple Ginghams
Seersuckers
Shirtings
Chambrays

1921 Cloth
Panola Cloth
Daisy Cloth
Fleecedown
Teazle Down
Tunis Cloth
Clover Cloth
Iris Cloth
Smyrna Cloth

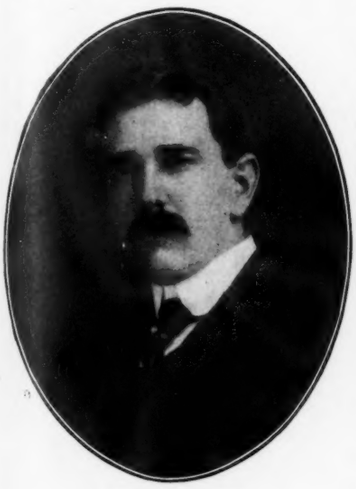
36-in. Plain
and Fancy Flannel
Denims
Tickings
Bleached Goods
Grey Goods
Bags

WORSTED DRESS GOODS

Serges — Cheviots — Panamas

Vigoureux Mixtures

the manufacturers abroad might have on hand, but that if any special colors which we desired to obtain were not on hand and were not being manufactured, that the German Government would release the raw materials necessary to make such productions and to insure us on this side, the average line which we had heretofore received, and for which there would be a reasonable cer-



HERMAN A. METZ

tainty of demand on the part of our consumers. The regular importers will handle these dyestuffs.

"Whether American ships can be obtained that will hold from 7,000 to 8,000 tons at this time is a question, and whether the German manufacturers would send such quantities in a single shipment, taking a chance of accident is another question.

"Negotiations, therefore, are pending between the State Department and the British Embassy to obtain from Great Britain a further modification of their permit, so that instead of two cargoes, a number of cargoes, totaling not over 15,000 tons altogether may be passed. If this concession is agreed to smaller steamers, such as the Matanzas, was carrying, 2,500 to 3,000 tons, could be arranged for, and sent over in ballast to Rotterdam at a cost which would not be excessive, and thus the entire quantity would be landed here within a reasonable time, and our mills be assured of a steady supply for the coming season.

"Naturally, the goods will have to be paid for before they leave Germany, as it will be necessary for them to travel as American owned goods without any German interests attached to them. These matters of detail however, can all be arranged, assuming that a modification of the permit on the part of Great Britain can be obtained by the State Department to meet the practical conditions which the bringing of these goods necessitates. The waiving on the part of Germany of receiving cotton or other American products in return for the dyestuffs is a great concession, particularly when one realizes that even if the German manufacturers received the present outrageously high prices ruling for dyestuffs in this country, the total amount would be a mere bagatelle when the cost of carrying on the present war is considered.

"It must be borne in mind also that the duty on colors is 30 per cent. The American Government, therefore, will get a handsome revenue from these importations, and what is most important the American industries will be able to see their way clear for the next season and know just what their supplies are going to be."

In answer to a question by W. C. Nichols as to the cost of the dyestuffs which would be released for shipment, Mr. Metz stated that it would be higher than former prices, that the price abroad was higher, that the ad valorem duty on a higher cost price would bring the cost up still more while the greatly increased cost of freight would be another element to be considered, but in spite of all these things the prices might be expected to be materially lower than those prevalent for similar products at the present time. He made the interesting remark that we are not likely to see again in the future the same low schedule of prices for German products that had prevailed before the war. He thought German dyes had been sold at too low prices before. Mr. Metz took issue with Mr. Chapin in regard to the use of direct artificial dyestuffs on government khaki, stating that it was not used in that work. In the discussion that followed, Mr. Chapin asked the privilege of replying to this question and stated that his samples were taken from the sample book of a large khaki manufacturer and this particular sample was from goods used for Boy Scouts' uniforms. Mr. Metz replied that that was a different proposition from the military khaki to which he supposed the preceding speaker had reference.

Dr. F. S. Dannerth spoke of the im-

F. W. PARKS, COMMITTEE ON MEETING

portance of research work in the laboratories of colleges and schools of the country, and believed that the association might well give some attention to development along these lines so that the students in our schools and colleges might be helping toward the solution of these problems.

The interest of the papers and the discussion held the large audience until after one o'clock, when the meeting was adjourned. There was no afternoon session, that time being left free for the members to visit the exhibition.

Thursday Morning's Session

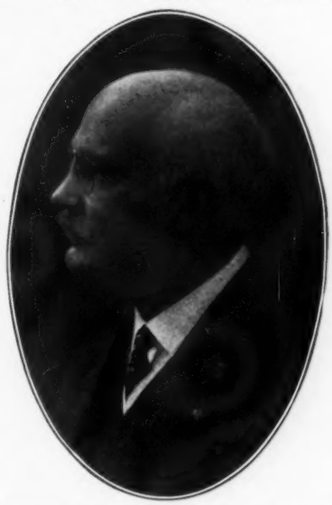
THE morning session opened promptly at ten o'clock and without any preliminaries the reading and discussion of the technical papers was commenced by the presentation of Dr. Kenyon L. Butterfield's paper on "The Relationship Between a More Productive New England Agriculture and the Permanence of New England Manufacture." Following the precedent of the last few years, the paper was presented by a five minute abstract and complete copies of the address were handed to the members.

In presenting his paper on "Calico Printing: Its Origin and Development," Robert Roech of Phenix, R. I., referred to the display of drapery samples which he had collected. He told the manufacturers it was the most wonderful exhibition of the art he had seen, referring specifically to a shawl made 100 years ago which compared very favorably with modern production. These samples were examined with much interest. Calico printing is a branch of the industry which is not so well known

FRANKLIN W. HOBBS, CHAIRMAN COMMITTEE ON MEETING

as some others and Mr. Roech's paper was a valuable contribution to the subject.

"The Cotton of Ancient Peru" was the subject of Morris C. Crawford's address. Mr. Crawford is a Research Associate in Textiles of the American Museum of Natural History in New York. Instead of following closely the theme of his paper, he devoted his time to a discussion of the dearth of new designs in cotton fabrics and implored American manufacturers to give more time and thought to this subject with the idea of developing strictly American designs. He said that the basis of American cotton goods production is purely Asiatic and drew attention to the productions of ancient Peru as presented by the American Museum, saying the Peruvian cotton goods industry offers a larger and more diversified field for study than the Asiatic. In referring to the dyestuff situation he



STEPHEN C. LOWE, COMMITTEE ON MEETING

said that the American Museum is now studying the dyeing methods of prehistoric Peru for the purpose of broadening the source of American coloring methods. He corrected Mr. Roech in the latter's claim of the first inventor of the cylinder printing of cotton goods stating that the Museum has a few samples of cylindrical clay printing rolls evidently used in the dim ages of archeology.

William E. Smith spoke on the investigations conducted by William E. Hatch and himself at the New Bedford Textile School on the question "Does the Comber Remove Short Fibres?" It will be remembered that Dr. N. A. Cobb has spoken on this subject at previous meetings and the practical tests conducted at the New Bedford School give additional valuable data on this subject. The methods employed were ingenious and testify to the thoroughness of the work. The paper is printed elsewhere in this issue. Mr. Crawford inquired whether microscopic tests showed many broken fibres. Mr. Smith stated that broken fibres were unavoidable in any separation of a body of cotton, that even if separated by the slow careful process of hand sorting there would be some breakage usually of undeveloped fibres. Mr. Duncan called attention to the interesting fact of the substantial agreement between Dr. Cobb's research work and that of Messrs. Hatch and Smith, as both investigations seemed to show that short fibres still remained in the combed stock, Dr. Cobb having found it with his experiments and Mr. Smith also to some extent.

The paper on "Cotton Handling in Southern Warehouses," by John R.

CHAS. H. FISH, SECRETARY

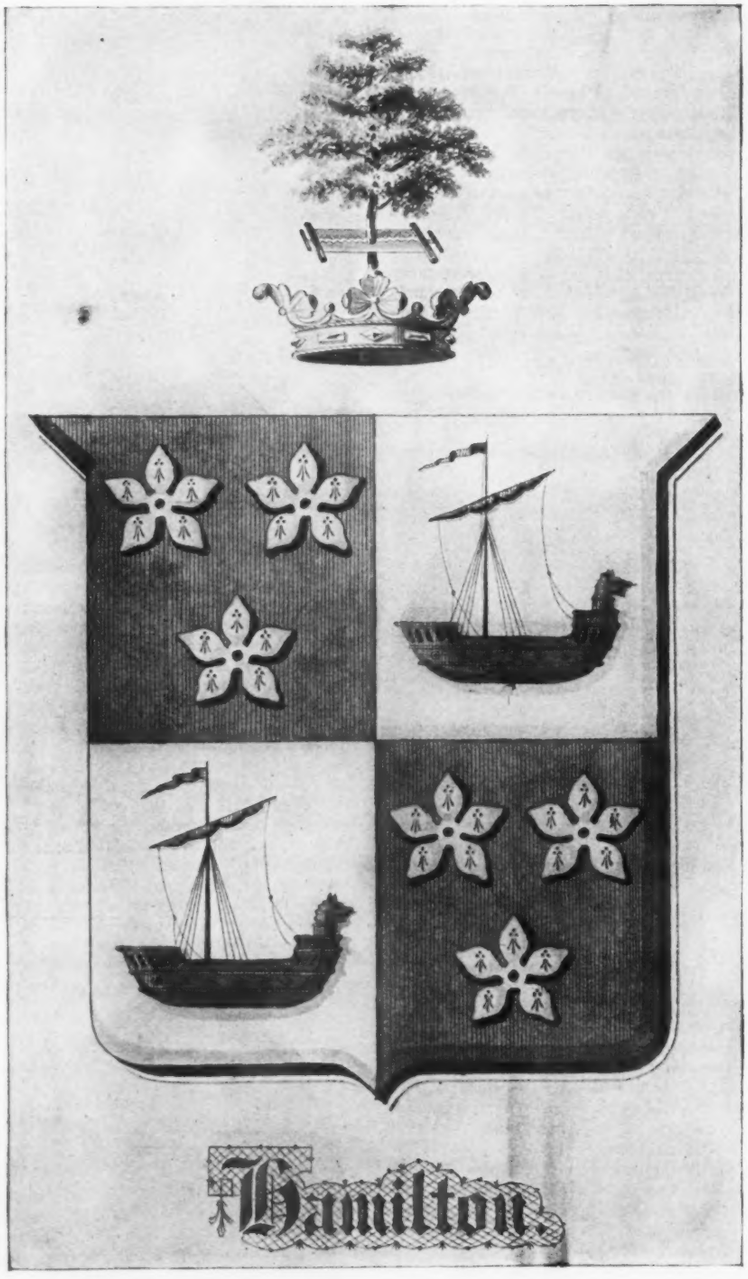
Fordyce, of Little Rock, Ark., was read by title in the author's absence.

The subject of "Best Methods of Factory Illumination" was presented by Ward Harrison, illuminating engineer of the National Lamp Works of Cleveland, Ohio. Mr. Harrison not only made some practical suggestions in regard to types of lamps and reflectors and their relation to machinery, but also spoke of the vital importance of such a system of illumination as would relieve all possible eye strain from the operatives. Fatigue to the eye may not be so immediately apparent as other forms of bodily exertion, but the effect is the same and results in efficiency of work and impaired health. His statement that 25 per cent. to 30 per cent. of the value of electric lights was usually lost from the fact that the lamps and reflectors were not kept clean as a striking commentary on the neglect of small things in many factories.

The Boiler Code of the American Society of Mechanical Engineers was explained by S. F. Jeter, chief engineer of the Hartford Steam Boiler Construction & Insurance Co., who urged its recommendation and adoption by the association and a resolution to that effect was introduced at a later session and adopted.

HAMILTON MANUFACTURING CO.

ARTHUR R. SHARP, Treas.



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Thursday Afternoon's Session

IN introducing Dr. S. W. Stratton, Director of the Bureau of Standards, at the opening of the afternoon session, President Duncan said: "I do not think we realize the important work that is being done by the Bureau of Standards at Washington for the textile industry in the testing and standardization of yarns, and we hope Dr. Stratton will take plenty of time to bring the work of that bureau before us fully and perfectly."

Dr. Stratton spoke extemporaneously and said in part: "It was suggested that a general talk would be more interesting than a specific one as to testing. I will endeavor to refer briefly to our testing in general and leave the details of the testing to experts of the bureau. In showing the slides I will describe the general work of the bureau, and my object will be to bring out the relation of the bureau's work to the industries generally.

"In connection with our testing it must be perfectly evident to all that it is based upon standard and methods of measurement. Therefore, the first work of the bureau was to establish methods of measurement in all the different branches, such as measurements of weight, length, electricity, humidity, light, etc. It is the foundation of methods of measuring quality and quantity and very little could be done without such standards. It was the intention, in fact, the act of the bureau, in the testing of the properties of materials to confine its terms to the standards of measurement. This work developed rather suddenly in a way which was not entirely anticipated. Much to my surprise I found that the practice of the Government in making purchases was a very bad one indeed. When I first came to Washington I frequently heard manufacturers say that they did not care for Government business, and being asked why, they replied that they attributed it to the long delays in paying, due to disputes in the acceptance of goods and the fact that under the competitive system of buying the decision was frequently left to experts in clerical work, but not in technical matters. The law requires that the departments shall solicit bids and shall take the lowest bidder, but the quality must be of the best. One of the materials that has long been neglected is textiles, but unfortunately it was begun wrong end to. The idea was to bring out a standard of quality or specification that would assist the manufacturer, the user and the laboratory man, and develop those things through investigations and to find out the use to which the articles are to be put. In making these tests the bureau is brought face to face with imperfect specifications and with insufficient methods of testing; specifications are of no use whatever unless based upon the right principles and unless followed up by the correct methods of testing.

"Without going into detail, I would say that the bureau has tested all sorts of fabrics as to their composition, all sorts of twines, cordage, ropes, cloth, for tensile strength, etc. The bureau has made something like 4,000 differest tests, involving probably ten times as many specific tests. At the present time nearly all of the Government textiles are purchased according to specifications and all are tested. It has in a great measure wiped out the disputes and prevented the unscrupulous dealer or manufacturer from supplying the Government with imperfect goods. It is not unusual now for the purchasing agents of large corporations to visit the bureau and to find out how things are tested and specified. Now, this, while it is a very worthy object, is not the most important phase of this work. We must be students before we can be teachers and it is necessary for those who are to take up the more important branch of the work of investigations to do what we can to build up the methods of test-

HARRY H. BLUNT, COMMITTEE ON ASSOCIATION MEDAL

ing and specifications before we can give them to the public, and this is done through personal visits and in other ways. Furthermore, by keeping in touch with an industry, we can ascertain those points that our industry needs to know. No one is more interested in the quality of material than the man who makes it, and the relationship of the buyer to the industries is growing closer and closer every day. We have over one hundred inquiries every day where we had one a year ago. The present conditions have brought American manufacturers face to face with the necessity for paying more attention to the specific side of manufacturing. There is tremendous progress along this line. It began before this European war. The bureau cannot begin to comply with all the requests. Every industry, through its association, is looking toward the application of science. Scientific methods not only in measuring, but in testing, are vastly more important in manufacturing."

"Dr. Stratton then showed lantern slides illustrating the different devices used by the bureau for testing yarns, ropes, and cloth for strength, humidity and the whole range of specifications. Other views were shown illustrating different phases of the bureau's activity, also views giving a general idea of the buildings, laboratories, and interesting experiments in other lines.

Mr. Duncan asked "Do I understand, Dr. Stratton, that the bureau is in favor of the adoption of the metric system?"

"The question of the adoption of the metric system is one that I did not intend to take up," said Dr. Stratton, "as I promised Mr. Dale I would be careful what I said about this. There is no question regarding which the Bureau has been so greatly misunderstood as that of the metric system. I personally believe in the metric system for commercial purposes, but have always contended that manufacturers should use whatever standards they please. I cannot express my feeling on this matter any more plainly than that. I do think, however, our present system could be modified to a much better system. I have expressed myself about this matter many times. Recently, at the request of the Secretary of Agriculture, I compiled a pamphlet showing what our manufacturers could do to meet conditions in South America and the complaints of the South American manufacturers. This was not intended as a metric propaganda, and was not intended for publication, but, greatly to my surprise, it was published. However, I cannot go into this question at this time."

At the conclusion of Dr. Stratton's paper, Mr. Bemis asked whether the material, etc., used in the different tests was furnished by manufacturers. Dr. Stratton replied that the manufacturers furnished the material and the testing, and labor was furnished by the Bureau.

William D. Hartshorne of Methuen, who has presented many valuable papers and received the Gold Medal of the association, made a report on "The Washington Conference and Its Relation to Tire Fabric and Other Testing Requirements," which is published on another page of this issue.

The last paper of the session was "Comparative Tests on the Amount of Moisture in Cotton" by Robert E. Naumburg, of Brookline, former student at the Massachusetts Institute of Technology, whose research work was prompted by a question raised by Mr. Hartshorne some years ago, as to whether all grades of cotton such as Egyptian, Sea Island, and common cotton would re-act in regard to moisture exactly alike under the same conditions.

ELLISON A. SMYTH, COMMITTEE ON ASSOCIATION MEDAL

Mr. Naumburg's experiments were intended to demonstrate this question.

There was some discussion of Mr. Naumburg's paper by Dr. Douty, of the U. S. Conditioning & Testing Co., Messrs. Duncan, Hartshorne and others in regard to details of the test. Mr. Naumburg explained that the results obtained by him confirmed Mr. Hartshorne's investigations on the "Laws of Regain in Cotton and Worsteds," presented to the Association in 1911.

The discussion of the subject of moisture in cotton and the regain was the most general of the session, and it was the evident desire of many of the members that the Association should put itself on record on this subject along the lines of a resolution prepared by Mr. Hartshorne. In the absence of his colleagues on the Resolutions Committee, Chairman Plunkett offered this resolution personally, and it was unanimously adopted to the gratification of those who have done so much work and research along these lines for a number of years. It had the endorsement of last year's special committee on this subject, of which A. T. Bradley was chairman.

REPORT OF COMMITTEE ON RESOLUTIONS

The Committee on Resolutions was composed of Messrs. Charles T. Plunkett, Chairman; R. M. Miller, Jr., John Skinner, William L. Lyall, Clarence Whitman and John P. Wood. Their report follows:

At this critical time in our history, when we may be called upon at any moment to exert all of the moral and material forces of the nation, we respectfully petition the President and the Congress of the United States to enact such legislation as will fortify the country industrially and provide adequately for national defense.

Ideals are to be commended but they should be embodied in efficient institutions and effective instrumentalities. This nation can best serve humanity by developing its resources, conserving its industries and maintaining a high standard of civilization.

We urge timely action permanently to secure the advantages made by American industries during the war, and to intrench them against foreign assaults after the war.

We respectfully ask, therefore, for constructive legislation in order that the military and industrial forces of the country may be developed in a manner commensurate with the dignity, the power and the resources of the nation.

Resolved, That the present accidental and temporary protection must be made permanent by a national law offering just and reasonable preference to the products of American capital and labor, so that the interrupted development of the nation's resources may be vigorously resumed. The more completely America is industrially independent, the more secure are the homes and lives of her people. This great truth, now more self-evident than ever, demands particularly the encouragement of every art like that of an adequate American dyestuff manufacture, which promotes alike industrial safety and national defense.

Resolved, That the National Association of Cotton Manufacturers is opposed to all practices tending to deceive the public as to the character or value of merchandise, including the misbranding of fabrics, fraudulent advertising or practices of like nature.

The Association desires to go on record as believing these practices to be unfair competition in the most harmful sense, and favors co-operation with other associations through a central bureau or otherwise as their Board of Government may deem wise, to prevent such abuses, and failing to do so in individual cases discovered, to press them vigorously before courts or commissions as may be required

OSCAR W. WOOD, COMMITTEE ON ASSOCIATION MEDAL

Whereas, The American Society of Mechanical Engineers having prepared a satisfactory code for the standardization of boiler construction to promote

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MAGNOLIA and CYPRESS SINGLE FILLING DUCK
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29 and 30 inches wide

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safety to human life and economy in operation, it is hereby resolved,

That the National Association of Cotton Manufacturers approves the said boiler code and recommends the adoption by States and municipalities where boiler laws are in force or may be enacted.

TRIBUTE TO SECRETARY WOODBURY

This Association and the cotton industry in general owes to Dr. Wood-

CHARLES T. PLUNKETT, CHAIRMAN COMMITTEE ON RESOLUTIONS

bury a debt which is unmeasurable. De voting himself in early life to the problems of mill construction and fire protection, he has, during all his official connection with the Association of upward of twenty-five years, been the leader in all movements tending to improve the processes and methods of textile mills. Under the guidance of his trained, scientific mind, the transactions of the Association have recorded in the fullest degree the development of the cotton industry in its technical, historical and social aspects; and they stand as a worthy monument to his memory.

To Dr. Woodbury more than to any other man is due the continued growth and prosperity of the Association and its value as a representative of the textile trade. In spite of severe physical disabilities during the last period, he has served its interests with fidelity and devotion, and it may be said with truth that he laid down his life in its service.

As individuals we shall miss him with his kindly personality, his unfailing courtesy, his broad culture, and his remarkable fund of information.

This annual meeting of the National Association of Cotton Manufacturers hereby resolves, as a tribute of affection and gratitude, that this resolution be entered upon its records and that copies be sent to the bereaved family.

Whereas, This association has received from the American Cotton Manufacturers' Association, in beautifully engrossed form, a copy of resolutions adopted at their meeting, held at Atlanta on April 4, 1916, expressing sincere sympathy in the great loss this Association has sustained in the passing away of Dr. Woodbury; now be it

Resolved, That this Association acknowledges, with thanks, the receipt of these resolutions, with a high appreciation of the expression of sincere sympathy therein contained;

Resolved, That a copy of this resolution be conveyed to the American Cotton Manufacturers' Association;

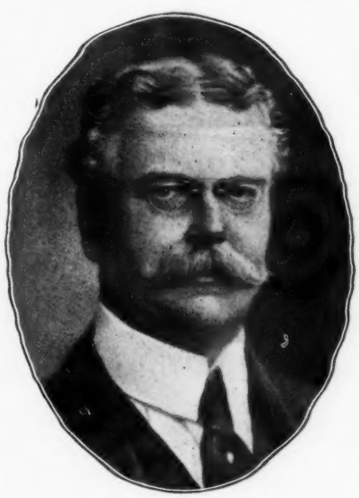
Resolved, That the thanks of this Association be cordially tendered to Hon. Joseph E. Davies and Darwin P. Kingsley, Esq., for their instructive and interesting addresses at the banquet of the Association; and

Resolved, That the thanks of this Association be cordially tendered to Kenyon L. Butterfield, L.L.D., and Messrs. Edward S. Chapin, Morris DeCamp Crawford, Leonard W. Cronkhite, John R. Fordyce, Ward Harrison, William E. Hatch and William Smith, S. F. Jeter, Herman A. Metz and Frank Vanderlip, Esq., for their papers or addresses before this Association, in which they have given the cotton industry the benefit of their experience and their specialized skill and information on the various subjects discussed;

Resolved, That the thanks of the Association be cordially tendered to the Textile Exhibitors for their excellent and instructive exhibit of cotton mill machinery and allied apparatus, and for their courtesy in honoring the membership badges for admission to the Textile Exposition.

The last business was the election of officers with the following results: President, A. Farwell Bemis, Boston; Vice-Presidents, W. Frank Shove, Fall River, Russell B. Lowe, Fitchburg; Directors for Three Years, Philip Y. DeNormandie, Boston, Herbert Lyman, Boston, R. M. Miller, Jr., Charlotte, N. C.; Director for One Year, John E. Rousmaniere, New York.

No nomination for secretary was presented by the committee as this office as filled by the Board of Governors who recently chose Charles H. Fish as



CLARENCE WHITMAN, COMMITTEE ON RESOLUTIONS

acting secretary and treasurer at the time of Mr. Woodbury's death.

On the announcement of the election, the newly elected president was escorted to the platform and in response to demands for a speech said:

"It has been a hard fight for this election and I thank you all for the honor conveyed. I am not an orator, but I would like to express in plain terms, the appreciation we must all feel for the self-sacrificing and very able work done by our retiring president during these last two years. I am in hearty accord with the plans of the association as outlined by Mr. Duncan in his opening remarks yesterday and again in more general terms last evening. It means more work and of a larger scope for the association. I shall gladly do all I can to take a step in that direction, but the real work and real progress must be largely through your own efforts. Each individual member of this association must take a hand in this work if it is going to be accomplished. I ask your help that my efforts will be put forth in the right direction."

This brought the Convention to a close at 5.30 P. M.

Jubilee Banquet of Cotton Manufacturers

THE jubilee banquet of the National Association of Cotton Manufacturers held in the ballroom of the Copley-Plaza Hotel, Boston, Wednesday evening, commemorated the one hundredth meeting of that organization, which is now entering its sixty-third year, and was one of the most notable gatherings in the history of the association. President Albert Greene Duncan presided, and the speakers of the evening were: Hon. Joseph E. Davies, chairman of the Federal Trade Commission, and Darwin P. Kingsley, president of the New York Life Insurance Co. Mr. Davies' subject was "Government and Business," and described methods by which his commission and the various Government departments were endeavoring to extend a helping hand to the country's business men—aiding instead of hindering business. President Kingsley, who has established a reputation as being one of the best after-dinner speakers in the country, spoke on the "Trilogy of Democracy," likening democracy in America to the mythological Prometheus, his subject being divided in accordance with the poet Æschylus' trilogy of Prometheus. It was a great oratorical effort and made a profound impression upon his hearers.

Treasurer Charles H. Fish and Stephen C. Lowe had charge of the arrangements for the dinner and received many compliments for the skilful manner in which every detail had been handled. Nearly 400 members and guests were present, including a large number of special parties occupying one or more tables. The usual custom of seating six or eight persons at small tables was followed and gave general satisfaction. Seated at the speakers' table with President Duncan were Messrs. Kingsley and Davies, E. W. Rice, president General Electric Co.; Vice-presidents William M. Butler and Grosvenor Ely, Treasurer Charles H. Fish, Stephen N. Bourne and M. H. Foster. The latter were introduced to the audience by President Duncan as two of the oldest members of the association, Mr. Foster's membership dating from 1872 and having been continuous since then, while Mr. Bourne, although nearly as old a

R. M. MILLER, JR., COMMITTEE ON RESOLUTIONS

member, has not had a continuous connection with the organization earlier than 1886. The Copley-Plaza orchestra furnished instrumental music and also accompanied the singing of popular songs, Stephen C. Lowe acting as leader for the latter. Mr. Lowe made a hit by his impersonation of John Philip Sousa leading the playing of "The Stars and Stripes Forever"; not only his impersonation, but also his make-up were so good that he was obliged to respond to an encore.

PRESIDENT DUNCAN'S ADDRESS

Before introducing the speakers, President Duncan spoke in a feeling manner of late Secretary-Treasurer Woodbury, stating that it was one of the dearest ambitions of the latter to live to see the hundredth meeting of the association. As a token of the esteem in which the late Dr. Woodbury was held by the members of the organization, he read the resolutions adopted by the Board of Government immediately following Dr. Woodbury's death, and which have already appeared in these columns.

He then reviewed briefly some of the salient features of the organization's history since its establishment in 1854, expressing his belief that, at this epochal period, it is pertinent to ask whether the policy and work of the association are all that they should be, and are realizing in the fullest degree the ideals for which such an organization should strive. He stated that the association started with 14 members who came together to discuss technical and practical subjects and that, until recent years, this has remained one of the chief objects of the organization. He felt that there was not the same need now that there was in 1854 for such work, the wonderful development of the textile press and the superior efficiency of salesmanship greatly diminishing the need of such association work. On the other hand, he stated, that some members of the Board of Government believe that practical and technical papers read before the association, and then passed upon by the Board and inserted in the transactions are given an authority that they could obtain in no other manner. It was his personal belief, however, that there was greater need than ever before for a truly representative organization of cotton manufacturers, to whom the various departments of the national government and other national organizations could look to as representative of the industry and as speaking with authority for it. We are called the National Association of Cotton Manufacturers, and we include in our organization practically every branch of the textile industry, thus having the basis of a truly national organization. Mill men and representatives of allied interests could work together to put the organization on a broader and firmer basis than ever before, and if it becomes necessary manufacturers should be willing to make the expenses of the assocaition a part of the expenses of their corporations. He gratefully acknowledged the hearty co-operation of the membership during his two terms as president, but stated that he was leaving something for his successor to do that he would have liked to accomplish during his administration.

In introducing Mr. Davies he stated that a year ago he had expressed what he felt to be the sentiment of the industry and of business men generally regarding the Federal Trade Commission, but that he was frank to admit that his criticisms were a mistake. We have had much to do with the commission since then and have found that it is trying to help and not to hinder business. No better Board could have been selected, and they have met us more than half way in solving our problems.

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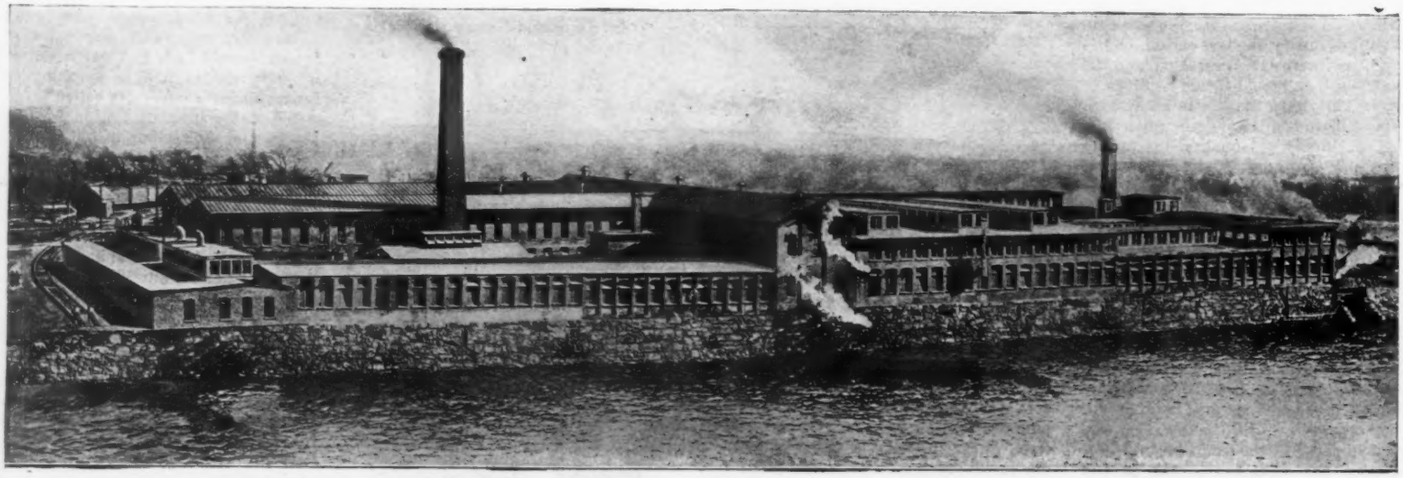

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SPECIAL ATTENTION GIVEN MERCERIZED VOILES MARQUISETTES AND FANCIES

European War and Industrial Democracy

By Hon. Joseph E. Davies, Washington, D. C.

THE economic map of the world is being remade. The nations are today studying it keenly. This is so, whether it be in Australia, South Africa, Central America, the Orient, or in the warring countries themselves. The best thought of the world is seeking to forecast conditions and so to readjust affairs as to procure the greatest possible national advantages in future development. The industrial, commercial, and financial intercourse of the world is in the process of being recast. The next few years contain possibilities of as far-reaching and enduring consequence to our industry, commerce and finance as perhaps any years in the history of our country.

POSSIBILITIES OF INDUSTRIAL AMERICA

What are we doing under these circumstances? To be sure, in the immediate shock of change, our business community met conditions with splendid adaptability. Yankee ingenuity and American enterprise display their genius to no greater advantage than in remaking their industry to conform to the changing conditions of the last 14 months.

What of foreign trade? Are we to be content with immediate and large profits? Or shall we recognize a great opportunity through which we may establish the character, quality, and value of American goods, and thereby establish a firm grip upon international markets, in anticipation of the keen competition that is to come, so that thereby a body of substantial foreign trade may be developed which shall serve as a back log and as a stabilizer of American industrial conditions for the long and great future?

THE GOVERNMENT AND ITS FUNCTIONS

But men engaging in business enterprise may well reverse the shield, and ask, "What has the Government done, and what is it doing in this situation, to perform its functions of serving the people of the United States?" The manner in which the forces of the Federal Government were marshalled to avert the economic and financial catastrophe in the first fateful weeks of the war is now history.

Since that time, and through the long period of 18 months of delicate and hazardous international relations, the big, substantial fact remains that this country has been kept out of war and has been held upon the paths of peace. That is the signal service that your President of the United States has rendered in this situation, not only to the nation but also to humanity.

In lesser degree every agency of the Federal Government has been bending its efforts to the aiding and sustaining of American interests in this war crisis. Of these various activities I cannot speak with definiteness, except as to those of the Federal Trade Commission affecting our foreign and our domestic industry under those conditions.

Being charged by Congress with the obligation of ascertaining and reporting from time to time as to competitive conditions that exist in foreign countries of the world which affect adversely the interests of American industry, the Federal Trade Commission concluded that the present was a time than which there could be none more opportune or valuable for the exercise of that power. Information has been gathered from all published sources as to the existence of foreign combinations of an international character that existed prior to this war, and which were operating in the markets of the world; investigators have procured first hand information as to conditions in foreign markets; hearings have been held in the principal centers of foreign trade in this country to obtain first-hand information from the business men engaged in foreign commercial enterprises; 30,000 letters have been sent out to business men, containing searching questionnaires upon the facts connected with foreign trade; upon this subject. One of the most significant facts in this connection lies in this,—that within the last six weeks we have received 20,000 replies out of those 30,000 requests to the business men of this country. From them we have received with promptness and generosity a vast volume of fact and detailed information, to be addressed to the solution of this problem of what steps, if any, are necessary that American manufacturers and merchants shall stand on an equality with their rivals in international competition. Time we have regarded as the essence in this situation. Within the next few weeks we hope to have assembled and digested a record of facts and opinions gathered from business sources, from publicists, from economists, and from first-hand knowledge of conditions in foreign countries, which will afford a substantial basis of accurate informa-

HON. JOSEPH E. DAVIES

tion for such legislative action as Congress may deem necessary and wise.

Epochal opportunity confronts American business to-day in foreign trade. Conditions have never been so favorable to trade expansion on a permanent basis. It is probable that never again will so propitious an opportunity knock at the door of American enterprise.

COMBINATION IN FOREIGN TRADE

There is much misapprehension as to the application of the anti-trust laws to foreign commerce. Of course, as a matter of fact, there is no greater restriction upon American business in the foreign fields than the law imposes as to domestic. Nor does the law forbid co-operation in either domestic or foreign commerce except where it amounts to a restraint of trade or a monopoly or a tendency to create a monopoly. The census taken by the Federal Trade Commission, directed to a very large number of business men of all classes, discloses that the great body of opinion in such circles is that co-operative effort in export trade is prohibited by the law. Our investigation discloses that more than half of the men who answered our inquiry stated it as their understanding of the law that co-operative enterprise in export trade is prohibited even as to noncompeting articles—a situation where ordinarily there would be no competition to be restrained. It is a fair statement of the fact that our investigations disclose that doubt as to the legality of such enterprise in the foreign fields amounted in many instances to a prohibition of any action in the foreign market. This belief is undoubtedly one of the factors in the situation which hinders the development of foreign trade at this time.

It is the opinion of the Federal Trade Commission that enterprise in foreign trade should not be impeded by conditions of this kind. In the absence of injury to any American interest a greater degree of co-operation in export trade than is allowed in domestic trade may be beneficial to the country. If this is not now permitted by law, new legislation, to that end, properly safeguarding the public interest, should be enacted.

BASIC PRINCIPLES

The objection which is urged with greatest force against co-operation for foreign business is that the combinations effected for export trade may be used to oppress competitors here at home and to exploit consumers in the home market. There is plainly a serious danger here, and it must be met frankly and guarded against effectually. But abuses of this kind, and the possible abuse of an extension of a monopolistic condition into the foreign field to the disadvantage of the smaller manufacturer in such activity, can be prevented, we believe, by Federal regulation. Other nations having policies similar to ours have found it possible within the law; and it is equally possible for us. It is not consonant with the spirit of our people to fail to grasp a great opportunity because of possibilities of evil, which can be guarded against and prevented.

ANTI-DUMPING LEGISLATION

The possibilities of dumping, by foreign manufacturers, of their product subsequent to the war, to the detriment and disadvantage of American industry, have also been an object of investigation and study in conjunction with the Secretary of Commerce. The Federal Trade Commission, with the Secretary of Commerce, will be prepared to make recommendations to Congress as to the methods by which any such anticipated situation may be best prevented.

SURVEY OF INDUSTRIES

The Federal Trade Commission has been in existence thirteen months. During that time the energies of the Commission have been largely devoted to a survey of the industries of the country. The sound basis for action comes only from an accurate and thorough appreciation of conditions. The processes of industry, the constituent parts thereof, and the interrelations that exist between different kinds and classes of industrial activities are matters of intricate and extensive importance. Information of this kind has been compiled, and is now available.

There is at hand, and will be immediately available for the Commission on Preparedness which it is reported the President of the United States is considering the appointment of for the consideration of the mobilization of the industrial resources of this country, a record not only of the industries available, but their respective capacities, actual and potential, the degree of their integration, physical and financial. This is the first survey of these factors assembled through governmental agency.

UNFAIR METHODS OF COMPETITION

The principal function for which the Federal Trade Commission was created was undoubtedly to prevent practices of unfair competition in industry. The object was to destroy monopoly in the seed, and to protect the great majority of business units in industry, whose chief menace comes from practices of unfair competition which might be employed not by a more efficient but by a more powerful rival. Complaints covering many varieties of unfair methods have been filed with the Commission such as, false advertising, bogus independents, price discrimination, bribery of employees, boycotts, misbranding of goods, rebates, and the like. These complaints have come from all classes of industry, covering the fields of mining, agriculture, manufacture, and distribution. Of these complaints, and their disposition, the public has not heard much. This is so because of two conditions which the Federal Trade Commission has imposed upon its procedure, for the public interest. No information is given out, or is obtainable upon any application for a complaint which is made to the Federal Trade Commission, until the case has been investigated and until it has been determined that a formal complaint is to be served by the Commission against the parties complained of.

EFFICIENCY IN INDUSTRIAL COMPETITION

To speculate as to the future conditions following the war is idle. But it is still greater folly to assume that in the long future lessons derived from conditions will not be translated with military effectiveness and discipline into efficiencies and economies of production and distribution, when the energies pent up in the struggle shall be released for industrial endeavor. The reorganization of industry, when finally established in Europe, will in all probability be invested with a degree of efficiency that will command the respect of all rivals in international competition in the markets of the world. The stimulus of necessity will speed these processes, with the resumption of peace; for international bills will have to be paid through reversing balances of trade, if that be possible; people will have to be employed, and every effort will be made by governments involved to sustain themselves from destruction.

When these conditions will obtain in international industry it will require all of our vision and discipline, enterprise and conservatism, sagacity and daring, to meet them. It will require that our industries shall be integrated and stabilized so that not only will the economies of sustained production be available, but it will require that the social well-being of the workers shall also be sustained upon a proper level, to the same end. It will require a large-minded intelligence and vision in the division of the fruits of industry between capital and labor. Socialized autocracy did this before this epochal war in a manner that challenged the admiration of the world. It is our task to demonstrate that representative democracy can be equally efficient and serviceable. The economies of large-scale production to the extent that they exist, the advantages of integration of industry, the sustaining force of stabilization in industry, the prevention of feast and famine, the prevention of cutthroat competition, can all be encompassed in a democratic state without yielding to monopoly in principle or in effect. The problem of democracy is to conserve the efficiencies of industry to the highest degree that is compatible with the fundamental conception of liberty and freedom in industry. The problem of government is not to thwart efficiencies, but to stimulate them, to aid them, to develop them to the highest degree that is compatible with the general welfare. That is the problem for democracy.

The Trilogy of Democracy

By Darwin P. Kingsley

BACK of the visible and hideous scenes of this European war lie tragic forces which threaten not merely this or that nation, but humanity itself: a destroying thunderbolt has again been launched against it. The race more or less subconsciously understands its peril, and there are reactions now taking place in the soul of the world as unmistakable as those which shocked and changed its spiritual life in the centuries preceding and following the birth of Jesus.

These reactions are a part of the development of Democracy; their story is a part of its Trilogy—of which two sections have now been completed. The third part, which should record Democracy's triumph, is now in the ferment of events.

This achievement of Democracy in America, its rejuvenation in Great Britain and her Colonies, its seemingly permanent triumphs in France, are the second part of the Trilogy: This is Democracy Unbound.

THIRD BIT OF TRILOGY

And now the spark secretly carried from Olympus has become a flaming torch.

To-day we are facing the third part of the Trilogy. Will that section record the realization of Democracy's Dreams? It requires some faith to say that. Can Democracy be born of Tragedy? Can Brotherhood be born of Hate? Can order come out of chaos? Can Liberty and Equality and Fraternity be the children of Death?

Who shall lead humanity out of this immeasurable disaster?

Whence is to come the inspiration which shall produce reason and the light that shall show a road?

That inspiration and that light can apparently come from but one source. Duty as well as Destiny indicate that our role in the work of redemption and salvation, our role in the section of Trilogy which is to record Democracy's triumph, if that triumph is ever to be achieved, is that of the Light Bearer.

There is apparently no other answer to the questions which the existing European tragedy thrusts upon us.

There isn't a factor in the forces back of the European war that was uncontrollable, although one of the elements, and that the greatest, is ordinarily rated as uncontrollable would properly be so rated but for the triumph of human reason represented by the American Union. This, therefore, is not only the most colossal war but the most colossal crime in all History—a crime so universal in its extent and so hideous in its immediate results that it ought to destroy existing standard of international relations and ought to visit an equal condemnation on certain individuals.

What ambitions, what fears, what ignorance, what passions so possessed the peoples of Europe on the first of August, 1914, that they were swept into fratricidal slaughter, looking each other in the face, touching each others hands, hearing each others voices, and knowing in their hearts that they had no desire to wrong each other.

Why had no great nation—including our own—ever been able to think in terms other than those of its own purposes and ambitions? Why had nearly all national thinking and all national action followed selfish lines only? Why had Great Britain's thinking—rich, vast, democratic and satisfied with what she had, as she was—why had her thinking been limited to the problem of how she could keep what she had? Why did no wider vision come to her? Why did she not see the peril and the tragedy that lay in such a selfish attitude? Why had Germany thought only selfishly while developing the most marvelously efficient machine that the world had ever seen? Believing in her own efficiency, in her own greatness, why had Germany's thinking suggested no way by which that greatness could be perpetuated except through the conquest of other peoples, through the ruin of other civilizations? Why had it never occurred to England that she could not, in a world so small, keep what she had, together with her boasted control of the seas, without consulting in some serious way the wishes and ambitions of other nations? Why had no process ever appealed to Germany except that of blood and iron? There was a reason for this narrow thinking, and it was this:

DARWIN P. KINGSLEY

The instinct of self-preservation is just as natural in nations as in individuals and animals and just as strong.

DOCTRINE OF SOVEREIGNTY

The Doctrine of Sovereignty made every nation an increasing and a deadly menace to every other nations, a menace which finally aroused everywhere the instinct of self-preservation.

When the world had so shrunk that every man could speak to every other man, when the light that comes with knowledge had flooded humanity, a strange thing happened—a thing as elemental as any of the happenings amongst the Gods and the Titans. In the most important relations of life men suddenly lost their vision, they lost their reason, they even lost their speech; and, at the same time, they reverted in their physical relations to the level of the Stone Age. Brought face to face through the developments of science, they were able to see and understand each other clearly in all relations of life but one. As citizens, as human beings, they saw and understood all citizens of other countries; they trusted and traded with each other; they were reasonably just to each other and would have been wholly so but for the overshadowing power of the Force that could at any time make them blind and deaf and irrational.

SOVEREIGNTY THREATENS US.

In Europe Prometheus is still fettered. The rule of Sovereignty possesses it utterly. Beyond our geographic limits it possesses us, too. We are as undemocratic in international relations as any nation that ever existed. And the tragedy of it is that we must be so until the lines that delimit nations have no more significance than the lines that separate the States of our Union.

EUROPEAN SITUATION

The situation in Europe threatens us; Sovereignty threatens us: because while we have a law under which forty-eight States can live together, Europe has no law under wrhich her States can live together, and we have no law under which our Union and the States of Europe can live together. We ought to have, but Unconditioned Sovereignty denies it; Unconditioned Sovereignty, whose sinister power can make even us blind and mad. Unconditioned Sovereignty threatens us. Because of that threat we are demanding that Washington prepare—there seems to be no other sane thing to do. Prepare to do what? Primarily of course to defend ourselves, but secondarily to re-create a condition under which our national boundaries shall become a wall through which we cannot see, behind which—not beyond which, let us hope—we may become as mad as any. How we hate it! As we make this demand, we feel that we have compromised ourselves, that we have parted with some measure of our most precious possession—our self-respect. Preparation with us, as with every true Democracy, is indeed a necessity only a little less hideous than war itself.

If to prepare—which at best is a patriotic reversion to barbarism—is all we are to do, we might well conclude that Plymouth Rock and Jamestown have lost their inspiration and meaning, that Lexington and Ticonderoga and Yorktown and Appomattox mark no advance. But preparation is not all—it must not be all. The necessity which demands preparation presents also a supreme duty. Not to discharge that duty, not to try at least to discharge it, will be to shirk our natural role and to fail humanity in a great crisis. As we demand that Washington take whatever steps are necessary for our adequate defense, we should demand that those steps be so taken that our brothers in Europe and in all the world shall at the same time understand this: that as yet we are neither blind nor dumb nor mad; that we hate war and all its hideous fruits; that we have no enmity against them; that we know a better method than war; that these forty-eight Commonwealths, having a territory as large as all of Europe outside Asiatic Russia and a population as great as that territory had a hundred years ago, have been freed and we believe that through the wise exercise of the authority that freed them Europe may be freed, and ultimately all the world may be freed. Our duty and opportunity lies in this:

We must break down the walls of Unconditioned Sovereignty. By no other process can Democracy survive.

By no other process can the heroic, god-like qualities of the common man be applied to his elevation, and not eternally to his destruction; by no other process can these qualities be redeemed from their present savage and internecine misuse; by no other process can the elements of this tragedy be controlled.

SOVEREIGNTY VERSUS DEMOCRACY

No form of government can long survive that does not give security to life and property. That is axiomatic. In the present constitution of this little world, ruled by the Doctrine of Sovereignty with its elemental appeal, the nation that would survive must be ready to fight. That is an admission which the citizens of a democracy make reluctantly, hesitantly, and shame-facedly. But we must face the facts. The citizens of a democracy naturally feel that they have moved in their ideals, their methods, and their purposes, beyond the savagery of such methods. But have they? Is there under the rule of Sovereignty so much less likelihood of trouble between democracies than there is of trouble between democracies and other forms of government? To be specific: Is there so much less possibility after all of trouble between the United States and Great Britain than there is of trouble between the United States and Germany? The same barbarism rules international relations in each case. If the thinking of the United States and Great Britain is more sympathetic and similar, it is because of a common origin and not because either nation is disposed at all to take down the cruel and dangerous barrier which divides them. They may think alike on either side of the barrier, but the barrier remains. The Doctrine of Sovereignty and the principles of Democracy are irreconcilable. Both cannot permanently survive in the same world.

Democracies will not be true democracies until they apply their own principles of government to international relations, until by the creation of an effective union of democratic nations they banish the savagery of sovereignty and the monstrous inefficiencies of so-called international law.

Until such a Union is achieved we must be prepared to defend ourselves: but as we prepare, what other things should we do? After all our glorious history, after our Declaration about man's inalienable rights, after our solemn assertions that all men—not Americans only, but all men—are created equal, have we no peculiar responsibility at this time? Must we just get ready and march out and sink into the ruck and horror of human slaughter? Is that the whole of the problem? I submit, in the light of our professions and our history, that humanity has the right to expect something more than that from us. Humanity has reached the hour when it is asking for a new Order and is listening for the voice of the Prophet who is to herald its coming. If the close of this war is not to be the hour of deliverance, who shall say that deliverance will ever come? If we are not the people to speak, then from whence in all the world shall the voice of deliverance be heard? Shall we by preparation for defense and by silence express our belief that deliverance through a new Order is impossible? Do we believe that this European slaughter is a part of the Order of Nature, and not to be avoided? Is the impulse which makes men love their country born of Evil? Must it forever bring in a harvest of tears?

A CONGRESS OF ENGLISH NATIONS

We now see another and a nobler vision: it pictures the solidarity of the English Nations, it tells us that they are to-day divided only by a political fiction; that in their united action lies the only hope that Democracy's Dreams will be realized. They are one in language, one in sympathy, one in traditions, one in principles, one in standards of justice, one in ideals. The foundations of a Democratic Government so vast that it could compel peace are already securely laid if the English world shall now arise and make the vision a reality.

Is there to-day somewhere a Prophet who shall yet stand in a Congress of English-speaking nations—a Congress similar to that which met in Independence Hall in the summer of 1787—and say as Washington did on the opening day: "Let us raise a standard to which the wise and the honest can repair; the event is in the hand of God"? Are there Madisons and Jays and Hamiltons to plead for the acceptance of the Order which that Congress would foreshadow?

The opportunity is greater than in

(*Continued on page* 137)

National Association Convention Papers and Addresses

A NOTABLE and impressive feature of the Boston convention this week of the National Association of Cotton Manufacturers was the fact that the programme was in large part a memorial of the late secretary of the organization, C. J. H. Woodbury. Excepting for the speakers at the banquet and one or two other features the programme of papers had been arranged by him before his last illness. Its combination of vital business and practical manufacturing problems, with historical papers and reviews of abstruse research work, is characteristic of the programmes that he had prepared for so many years and for so many audiences, and that had proved interesting and instructive to a membership of diversified tastes. It carried so much of the personality of Dr. Woodbury that, to many of the older members, it seemed as though the grave and dignified, yet intensely human, gentleman must still be among them.

The keynote of President Duncan's address was as far removed from the mill and textile trade as national preparedness is from pickers, despite the fact that the latter represent a preparatory process. It elaborated in interesting and patriotic detail the subject of nationalism that he touched upon in an impromptu talk at the recent convention of the American Association at Atlanta. Tuned to the same key was the address of Darwin P. Kingsley at the banquet Wednesday evening. They served to lift the convention from the dull routine of everyday business considerations to a view of the patriotic ideals that should constantly prove an inspiration and guide to legislators, as well as to the builders of big business. Of scarcely less importance and interest were the addresses of Hon. Joseph E. Davies and Pres. Frank A. Vanderlip of the National City Bank. Seldom is a regular session of the convention opened by a speaker of such national prominence as the latter, and more notable is the fact that he appeared at a regular session by preference instead of at the banquet, where such notables are usually heard.

It was appropriate that the technical or practical part of the programme should be opened by a dissertation upon various phases of the dyestuff problem. It covered the latest applications of dyewoods in cotton dyeing, a review of the important temporary source of dyestuff supplies located in China, and a characteristic bird's eye view of the whole dyestuff situation by Herman A. Metz. Scarcely less important was the series of papers delivered at the last session of the meeting covering various phases of cotton, yarn and fabric testing and research work. These papers developed important specific facts, but were of far more importance because of the vision they gave of the enormous field in this industry for systematic research work. The time is near at hand when manufacturers will be forced to develop organized work of this kind, or else be satisfied to see themselves outstripped by foreign competitors who are more progressive.

The remaining papers covered a variety of subjects of much interest to certain classes of mill men, but, as is the case with most convention programmes, there were too many good things to be quickly and thoroughly assimilated. One less session, and greater opportunity to discuss a few of the most vital topics would have afforded an ample mental meal for the majority of members. That is the tendency in other national bodies of manufacturers and business men, and it is resulting in greater accomplishments and more positive progress.

President Duncan's Address

AT the time of our meeting two years ago—in April, 1914—no one would have ventured to predict that a catastrophe was overhanging the world. Humanitarian, economic and financial considerations would then have been advanced, showing that a world war was impossible. The outbreak in the Balkans seemingly settled, the nations of Europe, after a period of strain and tension, had resumed their normal course of life.

A few short months followed, and prosperous and happy Belgium was a scene of desolation and slaughter. France, startled from her thrifty pursuit of industry and commerce, became a prey to terror and almost disaster. Russia's vast population and most stupendous national resources formed no defence from an invader who drove her back from her borders amid the ruin and destruction of her fairest provinces. England, supposedly secure in her isolation, seeing her dominance of the seas and her colonial empire threatened, was forced to take a leading part in a contest she could not avert.

Lack of adequate preparation for emergencies, far from keeping these nations out of a struggle into which many of them were loath to enter, made early results most disastrous. As a sequence of this world war, we have seen the blasting of Servia and Montenegro, the murder of hundreds of thousands of Armenians, and the blotting out of Galicia and East Prussia, with terrific sufferings to civilian populations who had no part or in many cases no knowledge of the struggle.

How foolish, in view of these awful events, is the self-sufficient attitude of America. The early days of the war threatened the breaking down of our financial structure. Curtailment of our trade followed, caused by the withdrawal of foreign vessels whose place our insignificant merchant marine could not supply. We suffered a personal loss, as well as in our dignity as a nation, by the murder of our fellow-citizens on the Lusitania. As the grip of the warring nations upon each other has become more tenacious, we are feeling the restrictions of our shipments to neutral nations, and our utter inability to secure many raw materials and products needed by our manufacturers. Yet at this day, nearly two years after the outbreak of the war, we are still discussing academically the question of the possibility of our being involved, the extent of our needed preparedness, or even the necessity of any preparation at all.

To anyone who will calmly review the history of the past two years, the plain lesson is evident, that civilization is but a thin veneer over the inherent savagery of mankind; that neutral rights or the rights of civilians have but little weight when national policies are at stake, whether these policies be for aggrandizement or self-preservation. To the citizens of this country, it should be clear that a nation that intends to preserve its national life and national ideals inviolate must make adequate preparation for its own defence against any emergency, no matter how unexpected, or against any attack, no matter how unjust and at variance with every policy it has hitherto professed.

This lesson is particularly pertinent to America at the present time, for both our business and foreign policies inevitably tend to make us enemies rather than friends among the nations of the world. Our foreign commerce is openly seeking to capture neutral markets from those who formerly held them and are prevented from trade owing to exigencies of war. Our necessary policy of neutrality is bound to be misunderstood, and to antagonize both parties in the struggle. Further than all, by our prosperity, in that we seem to profit from the misfortunes of other nations, we invite the envy, the cupidity and the hatred of all.

This is not the time to discuss in detail the question of preparedness. In principle it would seem as if all Americans should agree upon the necessity of national defence, but complicated as this policy is by questions affecting the various parts of our country in a different way, it seems desirable to avoid the details of preparedness and discuss the fundamental ideas which must lie behind any national policy, whether of defence or of any other problem affecting our national life.

PRESIDENT ALBERT GREENE DUNCAN

A strong national spirit, inspired by a love of country and animated by the ideals that have made our country what it is, must develop a broad outlook with which national problems must be faced. Vaporings of patriotism, jingo enthusiasm, pointing to our vast national resources and the willingness of millions of Americans to spring to their country's defence, calling attention in loud tones to our ability in the past to respond admirably to every national need, will not suffice. A calm, sober realization of what our country means to us is needed. A decision as to the lengths we are individually prepared to go, in deed as well as in word, is demanded if we would make our country the greatest, the readiest, and the sanest country, amid the warlike extravagances dominating the rest of the world.

What does America stand for? We believe it unique among the nations of the earth. It was founded on liberty, dedicated to the rights of man, and pledged to the principles of humanity. Read the Preamble to our Constitution, the Farewell Address of Washington, and the Gettysburg Speech of Loncoln—three great documents that embody our national ideal.

America is founded upon ideals and has lived because of them. It stands for something more than the material prosperity of its citizens. Its success as a nation is measured by something else than the yield of its factories, its mines, and its acres, or the per capita wealth of its inhabitants. Its national ideal cannot be expressed by columns of figures. America stands for something higher than cotton or iron or international trade. The people of this country achieved liberty before they acquired wealth, they established justice and the rule of law, because they believed these to be the foundation of good government, and not mere expressions of expediency.

As citizens of the first and the greatest republic in the world, we do not realize our unique position. We do not

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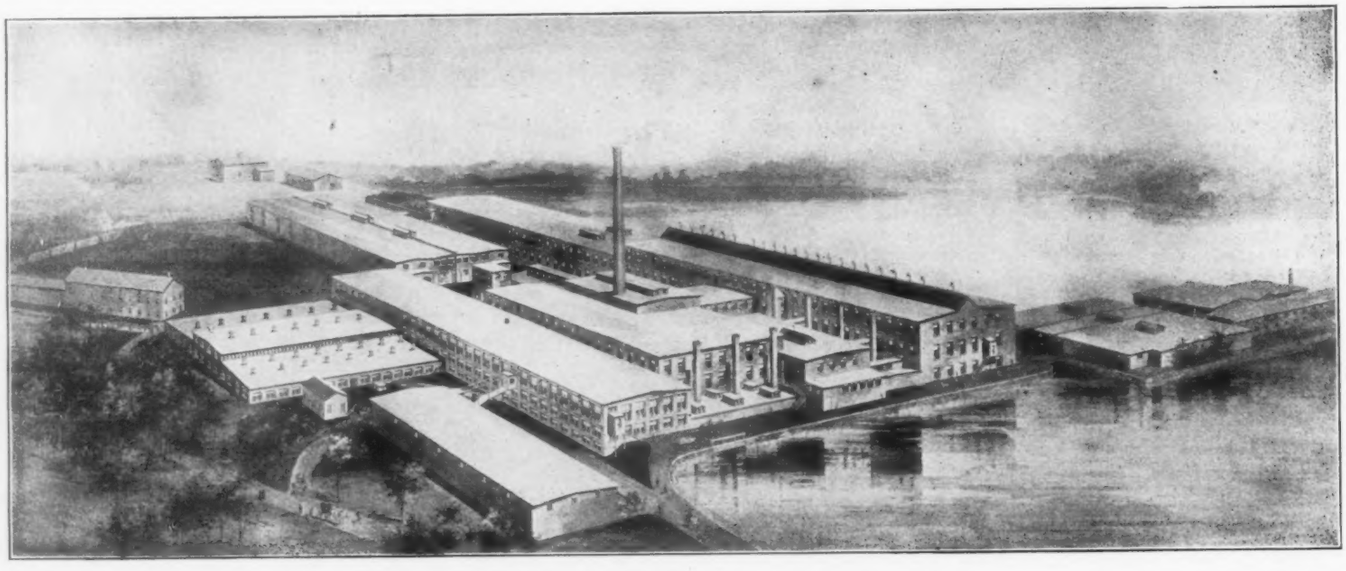

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fully appreciate that citizenship carries with it a higher degree of personal responsibility in a republic than in any nation under any other form of government. The success or failure of a republic depends upon the individual citizen, for with an ever-changing personnel in government no continuity of policy is possible unless demanded by the electorate.

The chief peril of democracy is its unadaptability for unified thought, and far less for unified action. The public often think they see the truth and act from sincere conviction, but many times without knowledge or understanding of fundamental facts. It is therefore essential that the ideals of our republic be kept alive by every citizen as a rallying-point for national unity and action, for it is only by the inspiration of a national ideal that the divergent forces in a republic can be focussed for the common good.

As the panorama of the world's history passes before our eyes, we see that it has not been wealth, nor commerce, nor learning, nor military power, nor any of the other attributes which could be particularly applied to any of the great nations of the earth, past or present, that has kept them strong. Trade routes and material advantages may have helped these nations at their origin, but the reason for their continued predominance and success has been their adherence to a strong and worthy national ideal, and when this has gone, decay and disintegration have followed with rapid strides. A republic having no trappings of sovereignty must hold high principle alone as the rallying-point for a strong national spirit. We are not an empire or a kingdom, and cannot draw from an hereditary monarchy inspiration that really flows from national spirit.

No better example of this national spirit can be given than by an incident at the close of the Franco-Prussian War, when France saw herself with a large part of her territory held by an invader, her Emperor a captive, her capital in the hands of the Commune, and her whole system of government broken. Marshal Bazaine, the commander of the fortress of Metz, surrendered without adequate resistance, and on the restoration of a stable government was court-martialed to answer to the manner in which he had fulfilled his trust. He pleaded that a large part of the army had been routed and captured, that there was no settled form of government to whom he could appeal for instructions, and he therefore felt that any resistance was unnecessary. As he said, "There was nothing left." The answer of the presiding judge will live in history as an example of how a national ideal can triumph over any catastrophe, however severe. Addressing the accused commander, he said, "But was there not France?" His question was never answered.

A republic whose citizens lose the conception of the nation as an entity and the embodiment of the high ideals and principles for which it stands, will soon sink to a point where expediency will replace national honor. Expediency excites no inspiration and is not a principle on which a nation can live. Expediency dictates the theories of peace at any price. Expediency demands commercial instead of spiritual welfare, and may well cause the breaking up of the very foundations of government itself.

The ideal of a government founded on principle is absolutely at variance to the theory that a state exists solely for the individual, and that the individual has a claim on his state for the protection of his life and property that is not equally balanced by his duty to do his part to keep the nation true to the high principles which were the cause for its foundation, and are the reason for its continued existence. The theory that a government exists merely as an insurer of real estate titles and a protector of material wealth is unutterably opposed to any ideal of nationalism, for such protection could exist with equal security in a vassal state ruled by an alien nation who had no interest but to encourage the tax-paying ability of its inhabitants.

I feel that, in the last few years, we have failed lamentably in this country to put a strong national feeling as the fundamental basis of our policy of government. Too often have sectional and local consideraitons been given weight as opposed to a national conception. There has been too much legislation for selfish ends, and too little national legislation for national needs. Our legislators, who are not alone to blame, as they but represent the sentiment of their constituents, have too often devoted their time and attention to the securing of appropriations for local benefits, to legislation to promote the advantage of one section as opposed to another, rather than to adopting a broad, constructive and national policy which should regard all questions in the light of national concern, and not in the sole interest of any one section of our country or of our population.

While of necessity our citizens, owing to different local environments, naturally must approach almost any national question from a different point of view, and while there must exist in any free form of government political parties with different ideas of how the nation's affairs should be best administered, he is no true American, whether he be citizen or legislator, who puts personal, sectional or party advantage above national welfare and prosperity.

No better illustrations can be given of the failure of our citizens or their legislators to regard our nation's welfare as a whole, than the action of our Congress in the last few months. With wars and rumors of wars all around us, with the realization that, after the present struggle, the world will never be the same again, that new alliances will be formed and old ones broken, that the warring nations will of necessity be forced to change their internal economies and their external policies in order to recoup themselves for the enormous expenditures in which they have been involved—with these facts patent to everyone, there has been no definite, consistent policy to put this country in an adequate state of defence for what may happen at any time, or in a condition of industrial preparedness for the trade war bound to ensue at the close of the struggle. These great questions have been considered purely in the light of local self-interest and party advantage, and not in relation to national welfare.

The war has already shown that, in spite of ample natural resources of our own to supply practically every requirement of our industries, we are dependent on foreign nations for a large number of essential products, notably dyestuffs. Yet, in spite of a clear case being made out by our citizens, irrespective of party, our legislators have let petty politics intervene, rather than regard the needs of their country first and their party afterwards.

With the necessity of large expenditures for preparedness admitted, no definite financial policy of taxation has been advanced, but an eager search has been made for some new form of revenue which will be least antagonistic to the individual voter, with the intent to minimize the opposition of taxpayers by imposing upon the few the largest part of the burden. In any program of such national import, taxation should be borne equally, according to his means, by every citizen, as a part of the responsibility of his citizenship. This clashing of political and personal interest with the interests of the nation as a whole is what is making the administration of our government inefficient and insecure for its citizens.

The man who thanked God that a naval gun had not yet been invented which would shoot from the Atlantic seaboard to the Mississippi river was certainly not thinking along national lines, nor was the leader of the dominant party in Congress regarding all sections of the country with equal solicitude and showing a national spirit in tariff legislation when he said, "We in the South intend to make the New England mills come down and put their mills there or else go out of business." Such sentiments emphasize the fact that citizens of this country often regard sectionalism, individualism and partisanship above nationalism. Such sentiments are at the root of much of the legislation of which business men in the last few years have had reason to complain. We should go back to first principles. We should forget our individual, local and partisan prejudices, and turn our faces toward the ideal of nationalism, which has been our salvation in our government crises of the past.

We are in the midst of a crisis to-day, and possibly one of the most far-reaching in its effect upon our national life we have ever faced. In spite of our monetary prosperity, in spite of our isolation from the struggle which is raging over three-quarters of the rest of the globe, we cannot pursue a lofty policy of indifference and aloofness to the great questions of national and international import which press for settlement. We have been forced, in spite of ourselves, into international relations. To protect our own financial structure, we have recently been obliged, for the first time, to engage in international finance, and such chains of commerce, once forged with other nations, cannot easily be broken. We must realize that we can no longer consider our own country as a law unto itself, but with the dawn of peace must engage in the struggle of nations for world trade. We have formed closer bonds with the nations to the south of us, and the Monroe Doctrine has changed from a measure for our own defence into an added responsibility we cannot shirk.

We can never again avoid world politics, if we would, and in entering this broader field of national opportunity we must firmly hold the principles for which America has always stood: Of peace, "with charity toward all and malice toward none;" of friendliness to all nations; of insistence upon full protection of American rights; of determination to defend American independence, American territory, and American ideals; of the rights of humanity; of the working out of the problems of democratic government in the Western Hemisphere without outside interference.

This is true Americanism in external relations, a creed to inspire and unite our citizens to the highest endeavor. But we cannot exhibit a national spirit in external relations unless we vitalize in internal affairs the doctrine of "Americans All," not sectionalists, not partisans, when the national needs of business, of defence, of revenue, or of any other problems of country-wide import demand settlement. For the Government means the whole people, with every citizen a sovereign whose allegiance can be given only to that which is higher than any embodiment of kingship: A National Ideal.

Reconstruction in Dyeing

By Edward S. Chapin, Boston, Mass.

AFTER briefly reviewing the dyestuff situation since his paper presented at the meeting a year ago, Mr. Chapin discussed present conditions, and especially coloring with natural dyestuffs, the development and use of Chrome Salt D, and the adapting of the dyewoods to the machinery at present in mills.

His paper in large part follows:

REVIEW OF PAST YEAR

One by one, during the past year, the mills have run out of one or more of their various imported colors, needed for staple goods. Happily, in some instances, the same color, made in this country, could be obtained; and American manufacturers of coal tar colors have worked like beavers to relieve the situation, and deserve great credit. The surplus stock of the dyewood manufacturers disappeared. Plants were run night and day, enlarged, new plants started and new supplies of dyewoods developed, and new methods of application invented and practically applied. Reconstruction has been the order of the day.

Concrete examples will best illustrate the reconstructions of the past year, and so I shall give a few typical examples of theoretical and practical developments in the dyeing of different forms of cotton. I shall also attempt to point out the fundamental principles which have governed in these developments, with the thought that once these principles are grasped they can be utilized by the various mills of the country in the solution of greater constructive problems with which the coming year and years seem weighted.

At the outset it must be stated that the available natural dyestuffs have not been able to, and cannot fulfill all the functions that have been fulfilled by a highly developed and diversified coal tar colors industry. There are limits to the uses to which natural dyewoods can be adapted.

Further, it must also be noted that our task has been rendered especially difficult by the fact that the situation had to be faced without the aid of two of the principal natural coloring matters, indigo and madder. Indigo was the standard fast blue of the old dyer, both for wool and cotton, and madder the standard fast red. The madder industry was ruined with the development of the manufacture of its coloring principle, alizarine, by artificial means; so that it has been necessary to look elsewhere for red. While the growers of natural indigo have taken advantage of the present emergency to increase their acreage, the total increase hardly relieves the indigo scarcity in this country, and we may practically say that it has also been necessary to look elsewhere for blues.

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The great needs of the past year have been responsible for bringing to light many scientific studies on the use of mordants and dyestuffs that would otherwise probably never have been published or practically tried out. The officers of this Association were the immediate causes in the affair. Through the tactful, kindly persistency of your late esteemed Secretary, Dr. C. J. H. Woodbury, and through the energetic co-operation of your President, Mr. Al-

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bert Greene Duncan, I was induced to take up the study of the use of natural colors on cotton and in modern machinery. In the practical and theoretical execution of this commission I have had the hearty and generous co-operation of the American Dyewood Company, Mr. W. A. Mitchell and Mr. Winthrop C. Durfee. The American Dyewood Company kindly opened their extensive practical research laboratories for the work, and Mr. Mitchell allowed the use of his dyehouse and the valuable assistance of his master dyer. Mr. Durfee has co-operated and assisted at all stages of the studies and practical trials.

These studies and practical trials have embodied the results of most protracted and abstruse physico-chemical researches. Natural dyestuffs are adjective dyestuffs, *i. e.*, they need a mordant for their fixation on fibers. This is illustrated most simply as follows: Boil a woolen skein in a solution of logwood. The wool will be stained brownish, and most of this stain will wash off under a faucet. If now the woolen skein is first boiled in a solution of chrome and is then boiled in a logwood bath, the result is a blue-black dyeing on the fiber which cannot be washed off. Chrome which goes on wool with lightning-like rapidity at the boil, has almost no power at all to deposit or dissociate on cotton. The cotton fiber is a most peculiarly inert substance chemically, and accordingly all methods of mordanting it formerly known, require many or tedious processes.

The subject of mordanting with chrome I studied at some length when I had the privilege of directing the research department of the American Dyewood Company; but these studies were primarily for wool. After leaving the American Dyewood Company, I associated myself with Mr. Winthrop C. Durfee, who for thirty years had specialized on the study of the subject of chrome mordanting. Thirty years' study of one subject may seem a long time to you, but the data and theories developed in this period were absolutely essential to furnish the key to the various problems which we are now discussing.

Much pioneer work has come to my knowledge that has been done by others in various mills of the country. Processes worked out are essentially private or closely confined to special requirements. Under these conditions such processes cannot be discussed here, although in the aggregate they make a large contribution to the advance in the use of natural dyestuffs. The work which I am about to describe, however, is, I believe, the most generally applicable, and even in this I cannot relate some of the special applications which have been worked out in certain mills at such an expense of time and money that full details would be a breach of confidence and an injury to the pioneer worker. In view of the present unusual situation and the grave needs of the industry and of the country, I give as much detail as possible.

Work has gone along three lines:—

First—To enlarge the range of colors obtainable from natural dyewoods, especially to obtain fancy and bright shades.

Second—To use apparatus that had been especially devised for the dyeing of artificial colors.

Third—To obtain results that would stand certain severe manufacturing processes or certain tests or service requirements.

OSAGE ORANGE

At this point it is in order to speak in passing of a notable addition to the fellowship of the available natural dyestuffs. Last May Dr. Woodbury sent me a clipping from the *Boston Transcript* about osage orange. At that time this product was not commercially available; to-day the story is different. This dyewood is of special interest because the tree grows in our own country. There is but a single species, *Maclura aurantiaca*, a native of Texas and Oklahoma and adjacent regions. It is a spreading tree with handsome, shining, ovate leaves, from 30 to 60 feet in height and 2 feet or less in diameter. Its wood is hard, strong and flexible, of a satiny texture, the heart wood bright orange turning brown, the sapwood lighter. It was formerly used by Indians for bows; hence called by the French settlers *bois d'arc* (bow-wood) It bears cutting back and has formidable thorns, and hence is very extensively used for hedges. The lumber from the wood has proven very valuable in the States in which the trees grow; but although the waste from these mills is considerable and it was known that the wood contained dye principles similar to those contained in fustic, its utilization to make commercial dyestuffs was not attempted until the present war and situation gave the proper setting and opportunity. The name selected for the extract from the osage orange is happily botanical, aurantine. This product is now being manufactured and used in large quantities. A very interesting dissertation on this new source of dyestuff is found in the *Journal of Industrial and Engineering Chemistry*, Vol. 6, No. 6, page 462, June 1914, a contribution by F. W. Kressman of the Forest Products Laboratory, Forest Service, United States Department of Agriculture, in co-operation with the University of Wisconsin, the subject being "Osage Orange—Its Value as a Commercial Dyestuff."

RANGE OF SHADES ENLARGED

The range of shades obtainable from natural dyestuffs has been considerably enlarged since the paper of last year. This has come about through the development of the chemical then described as chrome assistant.* This chemical which was originally invented to use with chrome to mordant cotton in circulating machines has been worked over into a new, more practicable form. The resulting product has been placed on the market as Chrome Salt D, and has given on cotton new reaches in the natural dyestuff compass of colorings.

The principal natural dyestuffs which have been used to produce the new range of colorings with chrome salt D, are logwood and hematine; fustic, quercitron, and aurantine; hypernic, and cutch and gambier. The first two, logwood and hematine, give blue; fustic, quercitron and aurantine yellow; hypernic, a corinth or wine; and cutch and gambier, brown. By combining these various dyestuffs other shades, black, brown, orange, green, olive, khaki and various fashion shades have been secured.

Nor is this all; the study of the theory of the processes has led to further developments. It has been found that the character of the mordant and its effect on natural dyestuffs can be changed by the use of other chemicals; also that dyeings on the chrome mordant can be diversified by after treatments or further developments with other chemicals.

The effect of the chemicals on the mordant is best illustrated by tin crystals. If cotton mordanted with chrome salt D is dyed with hematine, the result is a blue. If the chrome salt D mordant is worked in a bath of tin crystals and then dyed with hematine the result is heliotrope to a bluish violet, depending on the quantity of tin crystals and the quantity of hematine employed.

* The Revival of the Use of Natural Dyestuffs, published in Textile Manufacturers Journal, May 1, 1915, page 57.

With fustic bark or aurantine, a straight chrome salt D mordant gives a medium yellow, but with the chrome salt tin crystals mordant the result is a very rich bright yellow, fully equal in richness and beauty of shade to such a bright handsome artificial yellow as chrysophenine.

Bluestone is an illustration of a chemical that can be used with advantage to enrich and develop the shades obtained from natural dyestuffs and chrome salt D. If the hematine blue or a green obtained from hematine and any of the yellows is worked in a bath of bluestone, the shades will be considerably brightened.

Tin crystals can also be used in after treatments with noteworthy beneficial

EDWARD S. CHAPIN

results. Hypernic dyeings on chrome mordants can be lifted from a rather dull corinth to a rich wine, and varying mixtures of hypernic and the yellows from varying tones of brown to fairly bright orange and bright bordeaux.

The use of tin crystals in after treatments shows up most interestingly in the production from cutch and the yellows and hypernic of a very pleasing range of bright tans. With the old methods of dyeings, dull results alone were produced from these dyestuffs, not to be classed for a moment with the pretty and bright tans that came into vogue with the use of artificial colors; but with the development of the chrome salt process in the past year, the brilliancy and richness of practically all the standard tans of commerce can be readily reproduced with natural dyestuffs.

The chrome mordant range of dyeings can be further diversified by the use of the dyebath in conjunction with the natural dyestuffs of certain of the artificial colors. Thus, methylene blue, which is now being successfully manufactured in this country, can be added to the logwood or hematine dyebath, and a very rich blue results; or to a dyebath containing hematine and any of the yellows, and a bright green follows. Further, other artificial colors, as certain chrome mordant dyestuffs or chrome resisting direct dyeing cotton colors, which are either still to be found in the reserves of many mills or which could be made in this country with proper protection, can also be used in conjunction with natural dyestuffs by this new process to enlarge the range of colorings.

FORMULAE FOR DYEING

The following formulae represent the general method of application of the processes, and will be given for yarn dyeing, although they are equally applicable for piece and for stock:

Dark blue on yarn—100 pounds yarn.

Mordant the yarn with 10 per cent. chrome salt D. Enter at the boil and boil one hour. Rinse.

Dye with 15 per cent. logwood extract or hematine paste. Enter at the boil and boil one half hour. Add 20 per cent. common salt, and continue the boil one half hour. Rinse.

Black on yarn—100 pounds yarn.

Mordant the yarn with 15 per cent. chrome salt D. Enter at the boil and boil one hour. Rinse.

Dye with 25 per cent. logwood extract or hematine paste and 10 per cent fustic extract. Enter at the boil and boil one half hour. Add 20 per cent. common salt, and continue the boil one half hour. Rinse.

Bright yellow on yarn—100 pounds yarn.

Mordant the yarn with 10 per cent. chrome salt D. Enter at the boil and boil one hour. Rinse.

Enter into a cold bath containing 2 per cent. tin crystals and just enough muriatic acid to keep the bath from turbidity, about ½ per cent. commercial acid. Work for twenty minutes. The yellow color of the mordant changes to colorless or gray-green. Rinse well.

Dye with 12 per cent. of fustic extract, bark extract, or aurantine paste by the usual process.

HYPERNIC AS A DYESTUFF

The use of hypernic as a base for reds and allied colorings, and as a red element in combination shades, leaves much to be desired. The fast red of the natural dyestuffs series was madder; it was never intended that hypernic, the extract from the soluble red woods, should be used for reds. Hypernic extract is not tinctorially strong, nor are the straight results from hypernic bright or fast. It has been considerable of a problem to secure on cotton from hypernic satisfactory reds or colors containing a red element—in fact, it should be said that these results are really at the present time only on trial. The following formulae represent the best methods to date of dyeing hypernic to obtain corinth, cardinal, bordeaux, etc.

Corinth on yarn—100 pounds yarn.

The process is the same as recommended for dark blue, except that in the dyeing is used 25 per cent. of hypernic extract. The result is of moderate fastness to soaping. By after treating with 1 per cent. of chromic salt D, ten minutes at a boil, a darker shade of corinth is secured; and the result is much improved in fastness to soaping, and could doubtless be used for ginghams or fabrics requiring results of extra fastness to soaping.

To secure brighter results from hypernic, tin crystals must also be used, and following are two typical fomulae.

Cardinal on cotton—100 pounds yarn.

Mordant as usual with 15 per cent. chrome salt D, and dye with 35 per cent. hypernic extract and 10 per cent. fustic extract or aurantine paste. After treat in a fresh bath with 1 per cent. tin crystals, fifteen minutes at a boil. This will brighten the shade. Then add to the same bath 2 per cent. chrome salt D, and continue boiling fifteen minutes. This will make the result faster.

Pink on yarn—100 pounds yarn.

The process is the same as recommended for cardinal except that the percentages of dyestuffs and chemicals are greatly decreased. Mordant with 5 per cent. chrome salt D; dye with 4 per cent. hypernic extract and 1 per cent. fustic extract or aurantine paste; brighten with 1/6 per cent. tin crystals, and fasten with ¼ per cent. chrome salt D.

CUTCH A TOWER OF REFUGE

Cutch has proven a veritable tower of refuge, giving readily results of superlative fastness, a refreshing contrast to the difficulties experienced with hypernic. The following formulae are typical of tans that can be colored on hosiery with cutch and the various yellows by the new processes. These tans compare favorably with the results from the fastest sulphur colors.

Red tan on yarn—100 pounds yarn.

Mordant and dye in the usual manner. Mordant with 10 per cent. chrome salt D, and dye with 60 per cent. cutch extract and 15 per cent. fustic extract or aurantine paste. At the end of the dyeing operation add 1 per cent. tin crystals to the dyebath to brighten the shade, and boil fifteen minutes further. Develop in a fresh bath with 3 per cent. bichrome fifteen minutes at the boil.

Orange tan on yarn—100 pounds yarn.

Mordant with 10 per cent. chrome salt

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4-35

D, as usual. Dye with 50 per cent. fustic extract or aurantine paste, and 20 per cent. hypernic extract. At the end of one half hour boil, add 20 per cent. salt. Boil fifteen minutes, and add 1 per cent. tin crystals. Boil fifteen minutes. Rinse.

Bright blue on yarn—100 pounds yarn.

Mordant with 4 per cent. chrome salt D. Dye with 8 per cent. logwood extract and ⅛ per cent. methylene blue 2B.

Bright green on yarn—100 pounds yarn.

Mordant with 6 per cent. chrome salt D. Dye with 6 per cent. aurantine extract, 1 per cent. logwood extract, 0.6 per cent. methylene blue 2B.

MODERN DYEING MACHINES

Next comes the question of adapting the dyewoods to the machinery in use in the mills. The great fear was entertained and with some justification, that production in the mills would be cut down very materially by the use of slow tedious methods of dyeing with natural dyestuffs; or even worse, that it would be absolutely impossible to secure any results at all in these machines. Developments of the past year have gone far toward offsetting this conception. Dyewoods have been colored in rapid production machines satisfactorily; in some instances the production quantity with artificial colors has been exceeded. Further, processes have been worked out by which the dyewoods have been colored in machines, as for instances the circulating machine and the padder, in which prior to the war there were no satisfactory methods of coloring with natural dyestuffs.

Before giving a general method for dyeing in circulating machines it will be advisable to add a little theory to the discussion. In dyeing yarn, the skeins can be entered at a boil, unless the apparatus employed is a pressure dyeing or circulating apparatus, when the theoretical considerations now to be advanced apply. The mordanting of cotton with chrome can only be secured by the use of a chromium compound in a peculiar state of equilibrium, or perhaps, I should say, arrested unequelibrium. The balanced big boulder on the hillside needs but a push to send it crashing down the hill; so the chrome salt D is in such a potential condition of unrest that it needs but the cotton and the boiling temperature to break it up and to cause fixation. At room temperature it is absolutely soluble and perfectly stable. The breakdown does not take place except at elevated temperatures, and not rapidly until the boil is reached. With circulating machines it is accordingly necessary to feed the chrome salt at a temperature much below the boil, and to raise the temperature slowly to the boil. By this means a slow even mordanting is secured on the fiber, and there is no precipitation at the bottom of the machine.

CHROME SALT IN CIRCULATING MACHINES.

Pack the machine carefully. Boil out the cotton well for twenty minutes. Cool to 140 degrees Fahrenheit. Add the chrome salt D to about one half a barrel of cold water. Add to the machine in ten minutes. Raise to a boil slowly and boil three quarters of an hour. Rinse carefully.

It is essential to rinse very thoroughly until rinse waters are perfectly clear.

Prepare a solution of the dyewoods in a large barrel. Use plenty of water, and boil to make sure of complete solution. The addition of the dyewood is the critical part of the dyeing, and it is essential that the dyewood be in thorough solution. Begin feeding the dye liquor at about 100 degrees Fahrenheit. The steam can be kept on while the dye liquor is being fed. Feed in ten to fifteen minutes. Bring to a boil, and boil one half hour. Add 20 per cent. common salt in ten minutes, and boil a further one half hour. Rinse.

This will ordinarily complete the process. For special effects as described in the various formulae for coloring yarn, it is sometimes necessary to treat the chrome mordanted cotton with other metallic mordants, as tin crystals, copperas or the like; and then again it is desirable further to develop or further fasten after dyeing with other treatments, using variously chrome, bluestone, tin crystals, or chrome salt. Wherever additional treatments are recommended it is essential to rinse very thoroughly after each operation, otherwise the cleanest and fastest results will not be secured.

The dyed cotton inclines to feel harsh. Accordingly it is advisable after the completion of the dyeing operation to soften. About 1 per cent. of any good softener, circulated for twenty minutes at 120°, will give a soft feel to the stock, and insure satisfactory spinning

RAPID WARP DYEING APPARATUS

Another form of apparatus found now in all cotton mills is the rapid warp apparatus specially devised for coloring warps with sulphur colors. In the paper of last year, formulae were given for coloring blacks on warps in such apparatus; and practical results were exhibited. The two methods given were the bluestone soda ash copperas method and the sumac bottom method. Both of these have been used largely in the past year.

The use of chrome salt as a mordant on cotton in these rapid machines, has led and is leading to new and notable results. The action of chrome salt D in mordanting the cotton fiber is wellnigh instantaneous, so that if a warp is passed through a chrome salt D solution, even at a very rapid rate, it takes up enough mordant to act as a bottom for any of the natural or chrome mordant dyestuffs. The range of dyeings shown in the cases can then be colored on warps.

The shade on warps most desired from natural dyestuffs during the past year, next to black, has been blue. With the scarcity of indigo, only partially relieved by the Chinese importations and the increased importations of natural indigo, it was necessary to look to logwood for blues for denims, tickings and the like. For a long time the trade held out against the logwood blue on denims, but finally this was accepted.

The following method of dyeing a blue on warps for tickings with hematine was carried out in a three-box washer. I believe it is the only method now known that gives a logwood blue on warps which does not stain the white in the making of the ticking.

BLUE ON TICKING

Each box of the washer contained 300 gallons = 2,500 pounds of water. The baths were started at a certain percentage strength of solution reckoned on the weight of the water in the boxes; during the passage of the warps through the baths enough of the materials was fed in, to replace what was taken out of the solutions.

One set eight warps, 7,500 yards each (2,700 pounds).

	Strength of Starting Bath.		Feed on Goods.		Wash.
	Per cent.	Pounds.	Per cent.	Pounds.	Method.
Chrome salt D (boiling)	2.5	62.5	5	135	Cold
Copperas (cold)	.6	15	1.3	35	Cold
Hematine, first run (boiling)	1.2	30	4	108	Omit
Hematine, second run (boiling)	0.6	15	4	108	Omit
Bluestone (150° F.)	0.6	15	1	27	Cold

One passage through the chrome salt D bath and one passage through the copperas bath performed the mordanting. After each, a running rinse with spray was given. Nips were set to squeeze well and uniformly. Two runs were given in the hematine bath; no wash between the hematine bath and the bluestone bath. After passing through the bluestone bath, the warps were given a running wash with spray.

With two washers, economies may be effected by maintaining standing baths. Logwood extract will not do for this process; it is essential to have hematine of good oxidation. Interesting theoretical problems developed in the practical application of the chrome salt D to the dyeing of warps, but this cannot be at present discussed.

This method of dyeing warps has been successfully applied in coloring warps for denims. Repeated practical trials have shown that the process can be applied in a four-box washer to equal, if not to exceed, the production of indigo warp or sulphur blue warp dyeing. Twelve warps of 5,400 yards each can be dyed in six hours.

This method of coloring warps for denims has the further interest that under ordinary times it would be of exceedingly low cost. The denim is not nearly so bright as an indigo denim and would accordingly suffer by comparison over the counter, but the cost of dyeing would be approximately one-half to one-third the cost of indigo dyeing. It is possible that by the use of a little methylene blue this deficiency in brilliancy can be overcome.

The chrome hematine dyeing process is a true dyeing process. The color is not deposited on the warps, as is the case with indigo. Accordingly, the denims resist household scrubbing. This has been demonstrated by practical trials. Overalls made from a chrome hematine denim were worn by the machinists of a well-known denim mill, and were examined after four household washings. The agent of the mill pronounced the result better than with indigo denims. This mill makes a high grade indigo denim. The chrome hematine denim is not so fast to soda ash as the indigo denim, and accordingly does not stand laundry washing as well as the indigo denim.

The chrome hematine dyeing process, unlike many of the older methods of dyeing logwood for blues, is not dependent on contingent conditions of oxidation. The color formation is a definite sharp reaction. The same color is always produced, and there is no variation in the shade of the warp. It required considerable study to prevent the warps from ending, but the only difference then was a difference in depth of shade; the tones were always identical.

THE PADDING MACHINE

The padder is a favorite dyeing machine in the cotton mills. Until recently no satisfactory method was known of coloring with natural dyestuffs by the padder; and it was a great triumph that certain of the artificial colors could be successfully colored on this machine. The quickness of the reaction of chrome salt D with cotton and natural dyestuffs led to the thought that here at last was a process which was especially suitable for the application in the padder of natural dyestuffs. This idea has now gone beyond the laboratory stage. Practical trials in a large way have given very satisfactory results.

Other instances could be given with detailed formulae of the adaptation of this process to other dyeing apparatus; but enough practical illustrations have now been described to show the foundation principles, which may be applied by the various mills to the working out of their own particular problems.

FASTNESS AND REQUIREMENTS

Not a little of the reconstruction now needed is a reconstruction in the mental attitude of the buyers of colors and goods toward the term natural dyestuffs, and toward the question of what are, or are not, reasonable standards of fastness and requirements.

For certain purposes only one sort of fastness is required. A color may be notably unfast toward many agencies, and yet possess this one sort of fastness. Thus, a hematine blue dyeing is of exceptional fastness to soaping, yet of only moderate fastness to light. This blue could be used for many fabrics where soap fastness is the principal requisite, and where light fastness is not considered. Again a logwood black can be dyed of very excellent fastness to light, but will not stand vitriol cross dyeing. Such a black could not be interwoven with wool which is to be cross-dyed with vitriol, but could be used in fabrics in the making of which there is no mineral acid cross dyeing, but which have as their pivotal test light fastness.

Natural colors can be dyed much faster than is commonly believed. The word artificial has been a fetish to conjure with, and it is only recently that American products and natural colors have had a fair hearing. For many years the word "American" or "natural" was sufficient to condemn a product or process in the thought of all too many mill and commission house men. They listened to claims of new processes, of improved fastness, and of special merits, with openly amused incredulity or ill-concealed contempt. In the past year many of these men have admitted that from natural dyestuffs can be secured results of a fastness or value they never before thought possible.

Another point which is reasonable and will help in the reconstruction is the question of right trade standards and tests. It is well within the knowledge of many in this audience when an acid test with concentrated oil of vitriol or concentrated muriatic acid was used as a means of discrediting logwood blacks. As a matter of fact this test has nothing to do whatever with the wearing qualities of a fabric; for ordinary atmosphere is somewhat different from oil of vitriol. It must be evident that the action of perspiration is not the same as that of concentrated muriatic acid. Nevertheless, we find today in the United States government specifications for khaki a concentrated muriatic acid test.

The khaki dyed with direct colors stands the muriatic test, but is entirely destroyed by house washing or laundering. The khaki dyed with natural colors resists repeated launderings and household washings perfectly, but is destroyed by the muriatic acid test. The direct dyed khaki will not stand exposure to light and weather, while the khaki dyed with natural colors may be worn winter and summer in sunshine or rain with impunity. As a matter of fact, the khaki from natural dyestuffs withstands steeping in concentrated lactic and citric acids very well, and it would seem as if this was a satisfactory acid fastness. Unfortunately the khaki from natural dyestuffs, judged from the best results to date, resists chlorine only moderately. Where laundries use chloride of lime this is a defect; which defect, however, is shared by results from practically all dyestuffs except the vat colors.

For certain purposes outlined in this paper and in the paper of last year, the use of natural dyestuffs may prove temporary. The mills should and would return, if a full supply of artificial colors again becomes available, to the use of artificial colors for many purposes, particularly where the artificial colors can be dyed more simply or give special effects.

The reconstructions of the past year prove conclusively that the natural dyestuffs can and should be used for many purposes, hitherto not dreamed of, with profit to the industry.

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Indigo Phase of Dyestuff Situation

By Leonard W. Cronkhite, Boston, Mass.

THE solution of the threatened dye famine at the war's opening presented four aspects, (1) maintenance of supplies from old sources through special international arrangement; (2) acquisition of stocks lodged in other parts of the world; (3) resort to the use of certain vegetable dyes; (4) domestic manufacture. My limited experience has been concerned with the second and third aspects, viz., the shifting of world stocks, especially of the largely used color synthetic indigo, and facilitating the import and use of vegetable or natural indigo.

SYNTHETIC INDIGO FROM CHINA

Shifting the world stock of synthetic indigo was an operation dependent upon the fact that the Orient, being a large user, had considerable stocks of indigo. The world uses about eighty million pounds of synthetic indigo (basis of the usual 20 per cent. indigo paste), 95 per cent. of which comes from Germany. Of this production, nearly 70 per cent. goes to the Orient, 50 per cent. of the total to China alone. China had the largest actual stock, and because of the cheaper class of work for which she uses indigo, there were reasons to believe that she might sell, rather than use, her indigo, to nations whose grade of work would enable them to pay a sufficiently high price.

Acting on a cable clue along these lines—the result of many cables—it was possible early in 1915 to offer in this country synthetic indigo for import from China. Against a normal price under 15 cents for paste containing 20 per cent indigotine, China had to be paid so dearly that the landed American price ranged from 90 cents to $1.30 per pound, as the operation proceeded through the year. After the quiet sale of a quarter million pounds, offerings became general, and continued through 1915 at advancing prices.

Some imports were made by dealers on a speculative basis; some consumers, therefore, paying for spot delivery from 20 cents to 30 cents per pound more than if they had bought for import. As stocks in the Orient dwindled, a few late lots were bought for import at nearly $1.50 per pound. Of late, China has asked $2 per pound for her small remaining holdings, and recent speculative spot prices here have ranged from $1.65 up to this figure. The difference between these highest figures and about $1.10 per pound for synthetic indigo, measures the inertia of movement toward natural indigo on the part of those unaccustomed to its use, for the cost of natural indigo per unit of indigotine has all along been approximately equal to a cost for synthetic indigo of not over $1.10 for 20 per cent. of indigotine, or about 5½ cents per unit.

It is difficult to estimate exactly what stock of synthetic indigo China had, since in addition to stocks lodged in strong hands, principally in Shanghai, native holders inland were found with stocks which they gradually were induced to give up. From the best information obtainable, there was available after the opening of the war, at a price, approximately, 50,000 small casks (of 133⅓ pounds each, as compared with 400-pound casks used for the American trade), or about six and a half million pounds. Of this amount, Japan is considered to have taken about 6,000 casks (a little of which was sent to the United States before custom entry into Japan), England 10,000 casks, and the United States 25,000 to 30,000 casks (or between three or four million pounds to this country). This last figure is based on personal knowledge respecting over 12,000 casks (about 1,600,000 pounds), and respecting the balance on the statements and reports of other importers.

These imports, together with some imports of natural indigo, gave the United States very nearly its usual year's supply of indigo in 1915.

As some have found, the operation was not without risk. Bankers were not enthusiastic at advancing on a commodity involving many times its normal value, and of a form susceptible of adulteration. Some consumers received choice Chinese mud dyed blue, at $1 a pound. In some instances, slight adulteration with calcium carbonate was found. In a few cases, the product consisted, apparently, of scrapings from indigo vats. In some cases, where seals were intact, there was evidence that native patience had drilled small holes and extracted indigo, replacing with adulterants. These exceptional cases concerned only a few portions of lots in which good houses had been imposed on by natives. In the main shipments have been standard and to the credit of the Chinese and Japanese exporters involved.

In nearly all cases, weights were enormously short by reason of drying out of moisture, but the indigo paste was correspondingly concentrated above 20 per cent.

So-called "Chinese indigo," a natural extract containing hardly over 2 per cent. indigotine, was not found safe to import.

It is a satisfactory retrospect, in a situation where profits taken have often been entirely out of proportion to the total economic warrants of the service performed by the seller, that the profits realized from this synthetic indigo movement were so fair as to receive the approval of buyers themselves.

NATURAL INDIGO MOVEMENTS

Shortly after the war opened, fearing stoppage of supplies of synthetic indigo from Germany, those American buyers, accustomed to the use of natural indigo, bought fairly heavily from England as soon as the embargo early placed on indigo by Great Britain was partially lifted through the issuance of special permits to ship dealing with each particular sale. Later, feeling that after all, German sources would be kept open, this country sold its purchases of natural indigo back to England at a profit, almost on their landing here. On the final stoppage, however, of supplies from Germany during 1915, this indigo was gradually bought back for the United States at slightly higher prices, the repurchase proceeding too slowly because of the temporary easing of the situation due to the flow of synthetic indigo from China during 1915.

SUPPLY OF NATURAL INDIGO

With the practical exhaustion of synthetic supplies for sale by early 1916, at anything like 5 and 6 cents per unit of indigotine, users all over the world are looking to natural indigo. The planted supply, before the introduction of synthetic, once enormous, had gone down to less than about one-eighth the world's consumption of synthetic compared on the basis of 20 per cent. indigotine; and even with the impetus given by the war to increased planting in 1915, the supply has been little increased by reason of flood damage the past season.

There is in sight, or just recently has been, natural indigo to an amount equivalent to only about twelve million pounds of 20 per cent. synthetic, against a normal consumption of synthetic of eighty million pounds, plus perhaps ten million pounds equivalent of natural indigo. Over against this fact of a small visible supply is to be considered, of course, that at the price, the world's consumption is greatly decreased, the Orient, which normally uses 70 per cent. of the total synthetic producion, now calling for only limied quantities of indigo.

The European and American demand recently has absorbed practically all the Kurpah indigo available, and a large part of the Bengal and Oudes (all India indigos), whereas the rather negligible South American output also is nearly sold, the small and rather low grade Mexican output being scarcely a factor.

KINDS AND VALUES

India is of course the main source in point of both quantity and quality,

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though in point of quality Javas are of great excellence. Of India indigo, Bengals are of first importance, being of highest indigotine content, and in other respects so desirable that they have always commanded a premium even for grades no higher in indigotine content than say Kurpah indigo. Bengals will run from 50 per cent to 75 per cent., and even higher in indigotine. In this year's markets they have commanded from 5½ to 7 cents per unit of indigotine, the higher concentrations commanding a more than proportionately higher price.

Nearly all the Bengal marks from the better factories were taken over by the British government for distribution under its supervision, and all other indigo sales from India or England have been made only under condition of special government permits being granted. The system has enabled the British government to keep a rein on the situation, to be tightened at any desired moment. While since the embargo early in the war, permits have been fairly freely granted, there is some indication that until the condition of the next and possibly increased natural indigo crop is known, the embargo may soon again become operative.

In point of value for the money, for average purposes, good Kurpah indigo has been the best natural indigo under war conditions. It has been obtainable at about 5 cents per unit of indigotine, running from 40 to 55 per cent. (and occasionally 60 per cent.) indigotine.

VARIATIONS AND TESTS

Unlike synthetic indigo, which is made to a specific percentage of indigotine (usually 20 per cent.), natural indigo is a very broad term in respect of quality and character.

In addition to wide variations in indigotine content, natural indigo furnishes marked varieties of shade, great differences in hardness and foreign matter present, and in difficulty of extraction of the theoretical strength. For this reason it has naturally been the custom to buy on sample and test only; but during the rapid movements of this war market, indigo lots have moved too rapidly to allow of this procedure. Therefore, unprecedently, this country is buying on cabled description and general specification only. It is a tribute to British methods of business that shipments secured in this way from houses whose experience entitles them to do the business, have been of a high order, and the money was paid before we had the goods.

The testing of natural indigo is subject to several corrections sometimes overlooked. In general practice, results from different laboratories are likely to disagree, the consumer sometimes feeling injured when in fact he has received full value.

To begin with, different chests and even parts of the same chest of indigo (especially Kurpahs), often fail to show uniform tests even within 10 per cent. in extreme cases. Testing single lumps, as is constantly done, is misleading up to at least 5 per cent.; average lots only should be used for arriving at a fair valuation test. Further, unless an exact standard procedure is determined on, the difference in results from two laboratories will be accentuated. Two good laboratories have recently been known to be 6 per cent. apart in testing the indigotine content of two halves of the same lump. Out of this condition has come an agreed English testing procedure, and the authoritative dictum of such English tests as the Perkins test is generally regarded as fair and final, regardless of the apparent findings of a home laboratory. While it is poor business to attempt exact guarantee of the percentage of valuable constituent in a natural product, the general average should and can accord with the general sale representation, if houses will be careful of their foreign sources.

As natural indigo contains from 5 per cent. to 15 per cent. of moisture, and under various conditions may lose, or gain moisture, comparative tests at different times or places should be made only with reference to a moisture-free or dry basis. Otherwise, as is frequently the case in disputes, wide differences in percentages of indigotine will appear to be shown. In indigo from reliable sources received in good condition, either short or long weights are possible because of either loss or gain of moisture. Within reasonable limits buyers should recognize this explanation.

The use of natural indigo is not quite so simple as that of synthetic. It requires grinding, though in the absence of grinding equipment the work can be done elsewhere at a small cost. In some cases, to obtain the full theoretical indigotine content in practical use, requires a complete and thorough-going dyeing equipment, comprising parts made with special reference to the nature of natural indigo; but in general, natural and synthetic may be regarded as interchangeable.

Even after the general adoption of standard synthetic indigo, controversy continued as to the relative merits of natural and synthetic indigo for certain purposes, a controversy now reviving in England. Natural indigo has continued to be used for certain purposes; and there are dyers here using both, who affirm that in practice a unit of indigotine from natural indigo proves slightly more economical tinctorially than one artificially produced. It is stated on good contemporary English authority that some English users have already

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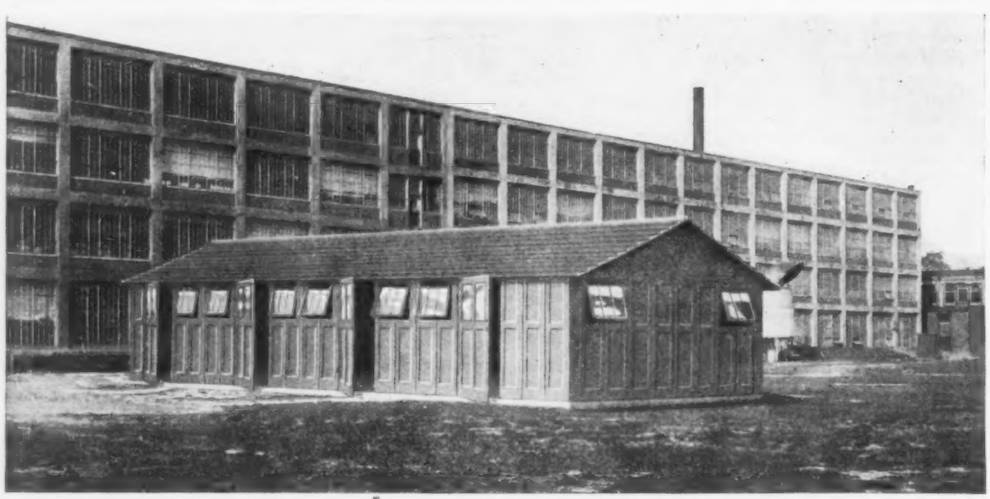

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determined to continue to use natural indigo even after the war, because of its rediscovered superiority for certain special purposes. This is not affirmed as of general application. Normally the United States uses about 10 per cent. of the world's production of synthetic indigo, and a comparatively small portion of the output of natural indigo. With the relatively large importations of synthetic indigo lodged in China, and with the recent fairly liberal purchases of natural indigo from the latest crop, there is no immediate indigo famine in this country among large forehanded users, nor should be for a few months to come save among small consumers. But aside from what little natural indigo still remains unsold, there will be no more until the new crop available in early 1917.

NEW SOURCES

New production of synthetic indigo has been rumored in this country, but at only a small rate of production not ready for some time, and at a price necessarily very high, not yet openly stated. The Japanese dye industry, subsidized by the government, is encountering difficulties due to lack of trained dye chemists, and moreover the Government has for a time forbade export of new colors. England is actually producing not only indigo to perhaps one-fourth her own needs, but other colors, yet none of these will be available until after the war because of the use of the necessary intermediate products for explosives. It is apparently undoubted that England will be competitor in the world's dye markets after peace is resumed.

How far this country has got toward a solution of the complex problem of dye manufacture, and how far it is desirable to attempt this industry, others are more competent to judge.

It is likely that toward the temporary amelioration of our dye difficulties, a little more could have been accomplished by a more prompt and co-operative search of the world's markets for available stocks, and by an attempt to facilitate exchanges of dyes between domestic consumers without the interposition of so many needless intermediaries, the introduction of so much salt adulteration, and the payment of such exorbitant intermediate profits. The country needed a war to teach it the value of prompt, co-operative, protective action between government, industries, private sellers, and private consumers.

Relation of New England Agriculture to Manufacturing

By Kenyon L. Butterfield, L.L. D., Amherst, Mass.

IS New England manufacturing threatened, or is the talk about such a danger wholly unwarranted? I am a layman in this field, and I cannot answer the question. We perceive a large development of textile manufacturing in the South and of general manufacturing in the Middle West. This may mean either serious competition with New England, or it may mean simply a natural expansion; but I suppose that, whatever it means, it has some influence upon manufacturing policies and prospects in New England. Such questions as keeping up the quality of New England manufacturing, and particularly keeping up the supply and quality of labor, must be exceedingly important issues. These very questions have been raised, I understand, among manufacturers themselves. There is apparently some ground for asking the question, "Is New England manufacturing threatened with serious competition from other parts of the country?" The task assigned to me is to discuss the following aspect of this question: Does agriculture have any bearing on the matter? Is there any immediate or even remote relationship between New England agriculture and New England manufacturing?

RELATION OF AGRICULTURE TO MANUFACTURING

There is no doubt of the intimate economic relationship between agriculture and manufacturing. The United States census is, I believe, authority for the statement that 80 per cent. of the raw material for manufacturing comes from agriculture. Certainly textile manufactures have no other source of supply than the soil. It is obvious also that the rural population, as an outlet for the sale of manufactured products, is a factor of great importance. I suppose that, barring some of the finer types of goods, the purchasing power of the nearly fifty millions of people of America who live under rural conditions is at least as great as that of the fifty millions who live under urban conditions, particularly with respect to clothing. Even if this be not true, the existence of this enormous purchasing population must be of tremendous significance. It is also clear that the supply of food for the workers in manufacturing enterprises has a very large bearing upon the ultimate prosperity of the manufacturer. Again referring to the United States census for 1900, I think, the remark was made that the wonderful development of manufacturing in the United States had been due in large part to the abundant supply of cheap food for the working men. I suppose the American working man is better fed, with respect both to variety and to quality of food than is the working man in any other country. In general, then, the three factors of supply of raw material, outlet for sales of goods, and furnishing food for the workers, all constitute prime elements in a most intimate relationship between agriculture and prosperous manufacturing.

Our question, however, has to do merely with New England. Now New England furnishes very little raw material for manufacturing. There are exceptions, of course, but they must be minor ones, like wood. Forestry is rapidly becoming a form of agriculture, and this asset of New England will continually grow. It is possible that New England may again produce considerable wool; eventually perhaps hemp, flax, and even silk, but it cannot be expected that New England will ever again contribute generously to the supply of raw material for any sort of manufacture. Nor is it likely that the number of rural people in New England, when compared with the total rural population of the country, can be looked upon as a very significant factor. The present value of agricultural products grown in New England is probably not less than $300,000,000 annually. It is within reason to prophesy that this value may be doubled and possibly trebled within a generation. Does this fact have any bearing upon the future of New England manufacturing?

STATUS OF NEW ENGLAND AGRICULTURE

We cannot answer this question intelligently without first considering, very briefly at least, some of the conditions that prevail in New England agriculture. There has been a popular feeling that agriculture in New England has not only been on the decline for years, but that it is hopelessly outclassed by other sections of the country, partly because of the sterility of New England soil and partly because of the depletion of the rural population. I think that today business men in New England are recognizing that neither of these opinions is justified by the facts. Until very recently indeed, however, the average business man in New England assumed that from the industrial point of view New England agriculture was of small account.

I believe it to be true that the land that is farmed is far better farmed than ever before; and not only so, but that some of the most skilled farming in the United States, if not in the world, may be found in New England, particularly in southern New England. With the use of commercial fertilizers some of the New England cultivated soils are not only more productive than ever before in their history of one hundred and fifty to nearly three hundred years, but they are more productive than any other lands in the United States, with possibly a few exceptions. The States having the highest value of agricultural product per acre of improved land are in New England. Much of the loss of population in the small towns has been due less to a decline in farming than to a loss of small manufactories. As a

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matter of fact, if we take New England as a unit and compare it with States having areas somewhat similar to that of all New England, we shall find that with respect to the number of farms, acres of improved land, value of agricultural property, value of annual agricultural production, average yield per acre, average yield per worker, or indeed by any other statistical test, New England as a unit, while it may not claim priority in comparison with such wonderful agricultural regions as Iowa or Illinois, is far above the average of the American states. Great areas of even rough land in New England can be brought into cultivation at a cost not excessive. I believe the present area of cultivated land can be doubled. As a matter of fact production is gaining surely, even if gradually.

It is worth noting, also, that the social machinery for the improvement of agriculture is developing in New England perhaps more intensively than in any other part of the United States. In New England we have six agricultural colleges, six experiment stations, six boards of agriculture, 1,500 subordiate granges with a membership of probably 125,000, thirty or forty county farm bureaus, an increasing number of county or local schools of agriculture, and numerous other State supported and voluntary agencies for agricultural progress and rural improvement. We have, too, a new enthusiasm for agriculture on the part of the farmers themselves and on the part of business men as well. The establishment of the county farm bureaus has been made possible in almost every instance by the interest of local business men.

These facts are brought out to show that if there really is a close relationship between New England agriculture and New England manufacturing, we may work out this relationship with the knowledge that we are dealing with an agricultural industry that is no longer on the down grade, but that is distinctively progressive, and in which the outlook is clearly optimistic.

There are two important considerations that arise at this point:

1. What place do these products have, or what should they have, in the dietaries of working men and their families, and—

2. Can they be grown to better advantage in New England than outside of New England?

I cannot answer either of these questions. They can be answered only by thorough investigation.

Whether the products of New England soil will affect New England manufacturing, must depend in part upon the place which the particular food products which New England can best grow, have in the actual food consumption of New England workingmen.

But, secondly, the question whether even these products can be grown in New England to better advantage than outside, remains to be considered. Obviously such foods as fruit, vegetables, and poultry products, will in general, and in spite of modern refrigeration, tend to deteriorate if shipped considererable distances. Clearly, also, such shipments cause numerous added charges for transportation, handling, cooling, etc. Home grown products ought to be better and cheaper than the imported; and here it may be said that costs of production in New England, may, in the case of many products, be somewhat reduced by such devices as geographical localization in growing, co-operation in use of labor and equipment, and co-operation also in the collection and sale of the products themselves.

THE MARKET OR DISTRIBUTING SIDE

Another element, however, enters here. One of the prime factors in price and in the maintenance of quality in all of these products is the system of distributing them from producer to consumer. It is almost a truism to say that the present method of distribution is not satisfactory. It does not give a supply when and where it is wanted, and it is costly. It satisfies neither producer nor consumer. At times there is an enormous waste of good products. I am not sure but that the small manufacturing centers suffer more than the large cities from improper distribution of food products. In these smaller places the supply of fresh fruit, for example, is often grossly inadequate. A system of trolley freights, as in the Middle West; reduction in railway transportation charges for the "short haul;" improvement in rural highways and the consequent increase in the use of the auto truck; the improvement of city terminal facilities, and the development of public farmers' markets, are all potential factors in a reduction in costs and an improvement in service, with respect to the distribution of New England-grown food products. There is also the question whether the workingman may not form consumers' co-operative societies.

RELATION OF THE WORKER TO THE SOIL

There is another phase of this question that looms up as an issue. Is it not possible, entirely apart from what the New England farmers may produce

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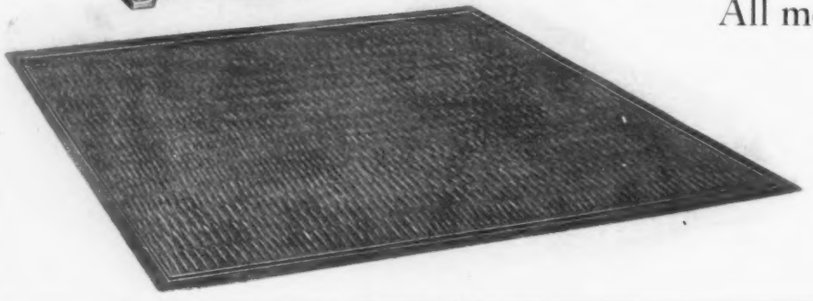

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for the workingmen of New England, that the workingman himself may do something to increase the quantity and quality of his food supply? Partly because he may actually grow some of his food, and partly because in this process he, or at least members of his family, may gain added health, vigor and content?

There are three or four ways in which it is conceivable that the artisan may utilize the soil to his advantage and to the advantage of his employer. We have developed only one of these in this country; but they have all been tried abroad.

1. By the use of vacant lots in the cities, either by individuals or by colonies. This is a very common thing both on the continent and in England. It utilizes a great deal of vacant land which is otherwise unsightly, as well as useless. There is not a city in this state, even Boston itself, but what has considerable areas that are unproductive because they are awaiting use for buildings. They are too valuable to yield an investment for the purpose of growing things to eat, but they may have a transient use that would be very helpful to hundreds of families.

2. Wherever a manufacturing industry is located in suburbs or in a village, there is more or less opportunity and encouragement for workingmen to live in houses with gardens attached. You who have had experience in trying to encourage this sort of thing know the difficulties far better than I do, but I have a feeling that we have not yet taxed the resources in this field. Shortened hours of labor for the worker ought to mean more time and strength available to be devoted to garden work.

3. I have already referred to the boys' and girls' agricultural clubs from the educational point of view; I believe they have great possibilities from the economic point of view. Last year, a Brockton school boy, on one-twentieth of an acre, grew products that sold for $95, received $12 in prizes for exhibits, and canned surplus products valued at $28. This total income of $125 was secured by an outlay of $15, leaving a net return of $110 from one-twentieth of an acre, for the lad's labor.

4. The development of garden cities. This dream of the social reformer may not seem to the practical business man to have a very sound basis, but I wonder if the time is not soon coming when we are all to be persuaded that the permanence of a great industry will depend in part upon the quality and status of the workingman. Indeed, may we not find that one of the great assets of permanent industry lies in the type and quality of the home life of the workers? I can see how such things may be disregarded temporarily, but I cannot believe that they may be permanently disregarded with safety, even from the standpoint of industry itself, to say nothing of society as a whole. At any rate, I believe that the experiment or demonstration, which the Massachusetts Homestead Commission hopes to carry out with legislative assent and under a recent amendment to the Massachusetts constitution, will be watched with the greatest interest, because it is the first attempt in America on the part of any State to work out the problem of a more satisfactory direct relationship of the worker to the soil.

Calico Printing; Its Origin and Development

By Robert Reoch, Phenix, R. I.

IN presenting this paper on calico printing; its origin and development, I am deeply conscious of the comprehensive character of the subject, and that in a brief address little more can be accomplished than a passing notice of the more prominent developments of this important industry. I will, therefore, very briefly refer to its early origin, and trace its gradual development from the crudest kind of hand painting on ancient fabrics and skins of animals up to the wonderfully complicated cylinder printing machine of the present day.

Within my recollection, block printing had reached its highest development, and it was not steam power, but Dame Fashion, that dealt the final death blow to printing by hand. This at least was true as regards Scotland, where shawl printing continued to flourish up till 1855, and even later.

Calico printing is at once a fascinating and perplexing business; new problems are continually presenting themselves which demand attention and keep the printer keyed up constantly to concert pitch. It embraces in its operations the highest mechanical skill, the most wonderful chemical transformations, and the sublimest art, in creating original designs and harmonious blending of colors. Broadly speaking, calico printing rests on the triple foundation of art, chemistry and mechanics, and yet again in its practical operation it is subdivided into three distinct branches —the preparation of the cloth, the engraving of the patterns, and the mixing of the colors.

These are all very different and entirely independent of each other, and, indeed, across the water it is not uncommon to have them done at different establishments. At the printing machine these separate units come together for the first time.

ANCIENT BLOCK PRINTING

When and where the first great step in advance was taken from hand painting to stamping or the use of blocks is shrouded in mystery. India and China are usually credited with this invention, and as may be supposed, the blocks in those primitive times were clumsy in the extreme. The method of getting the pattern on the blocks was by painting the design on a slab of wood, then all the unpainted parts of the wood were cut or chipped out, leaving the design in relief. In later times the design was built up on the face of the block, the finer or more elaborate parts of the design were obtained by thin pieces of copper of varying lengths and widths driven into the wood, and the solid or heavier parts of the pattern were filled in with felt. Such blocks were more durable and less liable to injury; patterns might consist of one or more colors, but required a separate block for each color. To state it briefly, block printing was done on precisely the same principle as the stamp and pad in common use today, but on a larger scale. Blocks were usually 10 to 12 inches square, so that with a block of 12 inches square it would require four hundred and fifty impressions to print a piece fifty yards long and one yard wide; and if it should happen to be a four-color pattern it would then mean eighteen hundred impressions. It would take a very smart printer to print two impressions per minute, making allowance for changes, etc. This would mean fifteen hours for eighteen hundred impressions, whereas a cylinder printing machine could readily do the same number of yards in one and a half minutes. This gives an idea of the immense gain in product since the introduction of the cylinder printing machine, and for many classes of fine work the difference in quality is almost as marked.

OTHER PRINTING METHODS

Calico printing offered an inviting field for the application of steam power, and many patents were taken out to supplant the slow process of block printing by hand. Three of these methods adopted in Great Britain are alone worthy of mention and continued in use for at least seventy-five years after the invention of the present method of cylinder printing. The first of these was invented by a Scotchman named Thomas Bell in 1770. Bell's method was called the plate printing or flat press process; it consisted of a copper plate 36 inches square and ¼ inch in thickness, on

ROBERT REOCH

which the pattern was engraved by hand. The very finest patterns could be engraved in this way, very much more delicately than could be done by block work. The mode of operation was very similar to letter press printing, except that in the latter the letters or figures are in relief, whereas on the copper plate the engraving is under the surface. The color was spread over the copper plate with a brush, but the great difficulty was to remove the color from the surface of the copper without removing from the engraved parts. Finally, after much experimenting, the difficulty was overcome by using a steel blade, which ever after has been called a doctor, as that remedied or doctored the difficulty; but it can readily be seen that this was not continuous printing, it could be used for handkerchiefs only, and was limited to printing one color. This was overcome later, for as the fabric passed from the copper plate it was spread on a table where other colors were blocked in by hand. Letter-press and lithographic printing are done in sheets, and up to the invention of copper cylinder printing, calicoes were practically executed in the same manner, but the great desideratum was to make it continuous, and have the pattern continuous. It was soon recognized that this could only be accomplished by having the patterns on a cylinder, and the most natural method to follow was to have blocks cut on a wooden drum or cylinder. Many patents following this plan were taken out, both in Great Britain and France. It was also the most natural thing in the world for this same Mr. Bell to have his copper plates rolled into circular form and brazed at the joint; his cylindrical roller was then complete, and continuous printing an accomplished fact. So, in 1783, Bell, who was then in the employment of an English firm in Lancashire named Livesey, Hargreaves & Co., took out patents for a six-color printing machine, which was followed by other patents in succeeding years.

Before leaving this branch of the subject, I ought to mention briefly another method of continuous printing which received a great deal of attention about the same time that Bell's invention came into use. This was called surface printing, the first patent for which was taken out in Great Britain in 1784, by an Englishman named Slater. This was followed by a great many other patents, but the work produced by this machine was so inferior, as compared with copper roller printing, that it never met with success in Great Britain.

DEVELOPMENT OF BLEACHING

It would be most interesting to refer somewhat in detail to some of the other important operations in calico printing, such as bleaching and engraving, but we must be content with the briefest possible reference to them. Let us first notice bleaching. For ages the method of bleaching was to steep the cloth in lye made of wood ashes for three or four days, and wash; then boil for several hours in a strongly alkaline soap, wash and spread out on the grass for two or three weeks, and keep well watered while exposed to the sun; this was called crofting. This alternate boiling in lye, washing and crofting was repeated four or five times. The cloth was then steeped in sour milk for several days and washed and crofted again, but the great bleaching agent was the sun. This buttermilk process came from Holland where milk was abundant; but about 1746, a Dr. Home of Edinburgh was led to the study of bleaching, and it so happened that about this time a Dr. Roebuck of Birmingham had discovered and patented a new method of manufacturing sulphuric acid which greatly reduced its cost. Dr. Home substituted dilute sulphuric acid for sour milk and found it much more effective, reducing the sour steep from days to hours. This was a slight advance, but it still took about six weeks to three months for cotton bleaching, and four to six months to bleach linen, according to the weight of the goods and weather conditions.

In 1774, a Swedish chemist named Scheele discovered chlorine, but it was not until 1785 that Berthollet, a French chemist, suggested its application for bleaching purposes, and read a paper before the Academy of Sciences in Paris in that year. Watt, the inventor of the steam engine, who had then become famous, was in Paris about this time, had an interview with Berthollet in relation to chlorine as a bleaching agent, and when he came home he began a series of experiments with chlorine.

ORIGIN OF ENGRAVING

We now come to engraving, which is a most important part of calico printing by copper rollers. At first it had all practically to be done by hand, and was necessarily a very slow process, but produced very beautiful work. It resulted, however, in a limited variety of patterns, even with a large force of engravers.

Machine engraving embraces all the finest and most delicate class of patterns, and may be compared to steel engraving. By this method a small piece of round, soft steel, called a die, is engraved by hand, and the amount of engraving is reduced to the minimum. After engraving, the dies is case-hardened by tempering, another piece of soft steel about three or four times larger in circumference, called a mill, is then

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taken; and these two pieces of steel are placed in a vertical press and made to revolve against each other under a pressure of several tons until the soft of steel called the mill is forced into the engraved parts of the die. This brings the pattern out in relief on the mill, which is then case-hardened and ready to be transferred to the copper roller. The latter must, of course, be an exact multiple in size of the mill, that is, if the mill is 4 inches in circumference, the roller would have to be 12 or 16 inches in circumference. The roller is then placed in the engraving machine and made to revolve with the mill pressed against it until the mill sinks deep enough into the copper to make a good impression. This is repeated until the whole roller is engraved, which in most cases requires but a few hours.

The other method of engraving, which is more commonly in use for the great majority of patterns, is called pantograph engraving. This class of engraving began to be used about 1860, and was the subject of numerous patents. By this process there is very little hand engraving, and may be explained briefly as follows: A careful drawing of the pattern is made; this is placed in a camera, and thrown down on a thin zinc plate enlarged five times. The pattern thus enlarged is engraved or etched, and when ready to be transferred to the roller the latter is covered with a fine coating af varnish and placed in the pantograph machine, which has a bar containing a diamond point for each repeat of the pattern across the face of the roller. The machine is so arranged that when the operator traces the pattern on the zinc plate each separate diamond traces and reproduces the pattern on the varnished roller, but brought back to the original size of the pattern, hence the name pantograph machine. Be it specially noted here, however, that this process does not actually engrave the roller, the diamond points simply scratch off the varnish; and when the roller is all traced over it is taken to an etching trough where it is slowly revolved in a bath of nitric acid for a few seconds until the engraving acquires the proper depth to print well.

EUROPEAN ADVANCED METHODS

There are a few things that the leading printers on the other side have adopted which I had the privilege to observe, a few months ago, and which might be adopted here by our printers to advantage. The first I would name is blanket washing, which effects a great saving by dispensing with back greys. The second is having machines wide enough to print two widths of cloth at one operation. The third and most important is the use of electro-plated copper rollers on iron centers. Such rollers on an average have not more than 25 pounds of copper, whereas solid copper rollers run from 100 to 150 pounds each. This electro-plating has frequently been tried here, but without success. It is done there, and it can and ought to be done here, and the saving would be enormous in several ways.

CHEMICAL DEVELOPMENTS

I will now proceed to consider the second part of the subject, viz., the development of calico printing from the chemical standpoint, and that, of course, relates more especially to the coloring department. Though the mechanical development has been marvellous, it is hardly to be compared with the amazing progress made in the production of new colors. Until about fifty or sixty years ago, vegetable dyes, with a few exceptions, were almost exclusively in use, and many of the methods employed were both crude and tedious in the extreme.

Cotton goods have no affinity whatever for vegetable dyes. The goods may be boiled in these dyes, but they will not absorb or develop the coloring matter of the dye, and some of the fastest and most valuable of the aniline colors called basic colors possess the same characteristic. Silk and wool, on the other hand, have a great affinity for nearly all coloring matters, and absorb them with great avidity. How is this difficulty to be overcome?

It has been found that certain salts which possess no coloring properties whatever in themselves have a great affinity for cotton goods on the one hand, and on the other a great affinity for the vegetable dyes; and colors dyed in this way are usually the fastest colors we have. Take, for example, the old genuine Turkey red and the old Merrimack pinks and purples of fifty years ago.

Please note carefully this other most remarkable fact that a variety of those colorless salts, which are called mordants, may be printed on the same piece of calico, and when dyed together in the same dye bath, will come out in a variety of different colors.

I might state here that alumina in solution will produce red or pink according to strength of the solution. Iron in the form of pyrolignite of iron will dye a black or lilac according to strength; solutions of tin give shades of orange and yellow, and various shades of chocolate and brown can be obtained by mixtures of these solutions with the addition of other materials, all of these shades being dyed at the same time with alizarine.

When the writer came to this country in 1867, just forty-nine years ago, fully 80 per cent. of the calicoes were printed in this way. To-day there is not a single print works here or abroad that does this mordanted class of work—yet some beautiful work was done by this method.

DISCOVERY BY PERKIN.

In 1856 a great impetus was given to calico printing and dyeing by the discovery of aniline violet by a young Eiglish chemist named Perkin. This discovery laid the foundation of the coal tar color industry, which in its results has been as profound and far-reaching as any event in human history when we consider the ever extending uses to which coal tar products are being put. Witness, for example, the terrific effects produced by these products at the battle front in Europe to-day.

In a few years after this discovery of aniline violet, there followed in quick succession other discoveries of different colors, until the whole range of colors in the chromatic scale was at the command of the colorist, causing a complete revolution in the printing and dyeing industries; but amid all the discoveries of so many brilliant colors, we had not what might be termed a perfect black. It was left to Mr. John Lightfoot of Lancashire, England, in 1863, to make this crowning discovery and give a black that covered all the requirements, and may be regarded as the type of all fast colors; but, like most other good things, there were difficulties in its application which caused much trouble. I might say that it was to introduce and work out this problem that brought me to the United States in 1867.

The discovery and application of aniline black effected many changes in the art of calico printing, and has been the subject of more patents and controversy than all the new colors combined. Although at first very difficult to handle with the chemicals at the colorist's disposal, it is now one of the simplest to produce, and to-day holds a more important place than any other color or class of colors in the whole range of coloring materials.

In 1869 the industrial world was again startled by the wonderful discovery of artificial alizarine by two German chemists named Graebe and Liebermann. Alizarine is the coloring principle of madder root, a plant indigenous to many countries in Europe and Asia and well known to the ancients. Fifty years ago madder was a very important article of commerce in this country, and was imported in vast quantities from France and Holland, where it was chiefly cultivated; to-day I doubt if a single ounce could be found in the whole country. Turkey reds had been made from madder from time immemorial, but the introduction of the artificial article in a purer and more concentrated form, made from coal tar products, caused a complete revolution in established methods. It greatly simplified the process of producing Turkey reds and other fast colors of this type, and opened a place for itself in other lines of work from which it had hitherto been shut out. It enabled printers in this country to do Turkey reds, bandanna handkerchiefs, and other classes of work, which hitherto had all been imported.

SYNTHETIC INDIGO DISCOVERED

In 1878 the industrial world was again electrified by the discovery of artificial or synthetic indigo, but it took about fifteen to twenty years before the article could be produced on a commercial scale at a price to compete with natural indigo.

Nearly all our dyeing materials are produced in that way to-day, and in such a concentrated form that often there is as much pure coloring matter in a small phial as used to be contained in quite a large package. Be it noted also that the great proportion of our medical drugs is prepared from coal tar products, and these new medical preparations are now numbered by the thousand. The discovery of synthetic indigo from coal tar derivatives is due to Dr. Baeyer, a German chemist, but it was not placed on the market as an article of commerce until 1897, by the Badische Anilin and Soda-Fabrik of Germany. In the interval between the original discovery of synthetic indigo by Baeyer and its successful introduction to the trade in 1897, color chemists were busy on various lines of work and wonderful progress was made. Among other discoveries, Messrs. Read Holliday & Sons of England, made the notable discovery of producing fast colors right on the cloth itself. This process was at first confined to the production of a brilliant red, which more than rivalled Turkey red itself. This process in a few years soon embraced several other colors, but the leading color of the group is still this brilliant red, in print works phrase called ice red, and it has almost completely displaced the genuine Turkey red, which has been in continuous use from the remotest ages. The wonderful thing about it is, that whereas the old Turkey red required weeks to produce, the new red, called paranitraniline red, can be produced almost instantaneously. The cloth is simply prepared in a bath of betanaphthol and dried, and then run through a bath of paranitraniline, which is of a buffish color, and in a twinkling the cloth is transformed into a magnificent red. The goods keep passing through continuously all day long, going in at one end colorless and coming out at the other end perfectly dyed a beautiful scarlet. In this way 25,000 to 40,000 yards per day can be dyed. Some precautions are, of course, necessary, such as feeding in the dye liquor regularly; but above everything else it is important to keep down the temperature as near the freezing point as possible by adding ice freely; should the temperature rise a few degrees above 32 degrees Fahrenheit, the dye liquor begins to decompose and will not dye up a full rich color, and if the temperature rises a little it ceases to dye altogether. Note here that with the old vegetable dyes, heat was necessary in dyeing, gradually bringing up the dyebath to the boil. This latter class of colors calls for ice in place of coal.

VAT COLOR DEVELOPMENTS

I come now to the newest thing in the way of colors from coal tar products, termed indanthrene colors or vat colors because of their similarity in deoxidation and fixation to the indigo vat. For many years a strong prejudice existed against aniline colors on account of their fugitive character; many of them were neither fast to sun nor soap, but it was aways felt that the time would come when these difficulties would be overcome. The class of colors just named are absolutely fast and fill all requirements, even of the most exacting nature. Blue was the first color of this group that was discovered, but, as in other instances, it was soon followed by the whole line of shades, and almost the entire body of German color manufacturers have their own special brand of this particular class of colors. For shirtings and wash goods generally these colors supply a long-felt want.

USE OF THE CRINKLE

This leads me to notice very briefly a very important improvement in the finishing of cotton goods. I refer to seersuckers and various kinds of crepe and crinkled fabrics which used to be produced in the manufacture of the goods and were both expensive and troublesome in the extreme to the manufacturer, and caused much trouble to the finishers of such fabrics.

This class of goods is all made from plainly woven fabrics and the crinkle effected by a chemical process in the finishing. The shrinking of goods by the use of caustic soda was first discovered in 1844, by John Mercer, an English printer, hence the name mercerizing. He used it more particularly for obtaining much brighter colors of greater depth and solidity, but the extra cost of the process and the great loss in length and width by reason of shrinkage led to its abandonment. In 1884 it was again taken up by the French printers, and crimp and seersucker effects produced by printing stripes with caustic soda alone or mixed with colors which were not affected by caustic soda. Such printed stripes, of course, would shrink and cause the unprinted parts to show the crinkle. Now, just the opposite course is pursued; the goods are printed in stripes with plain gum arabic and then run through a strong solution of caustic soda and washed well; the result is the unprinted or unprotected parts are uniformly shrunk up and the stripes protected by the gum arabic show the crinkle.

In Mercer's time, work of this character would have been wholly impracticable, because the vegetable dyes then in use would have been ruined. The use of caustic soda in the finishing of goods had not yet reached its limit. In 1895 Messrs. Thomas and Prevost patented the well-known mercerizing process of running the goods through a strong solution of caustic soda right on to a tenter frame and preventing the cloth from shrinking and washing out the caustic soda before the cloth leaves the frame. This gives the cloth a fine luster like silk, which is permanent, and to-day this process is in universal use.

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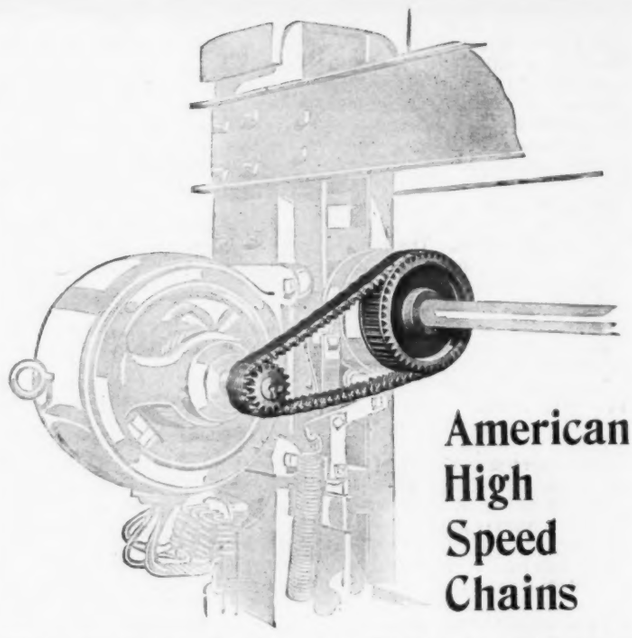

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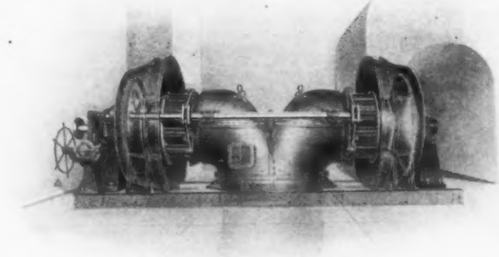

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The Cotton of Ancient Peru

By Morris DeCamp Crawford, New York City

THE limits of ancient cotton culture so far established, place southern Utah as the northern boundary and the center of Chili as the southern extreme. There is little doubt that when sufficient funds are available for exploration, the limits in our own country will be considerably extended, for the chief specimen from Utah indicates very high textile skill.

Mexico had a wonderful development in cotton weaving. Her ancient statues are carved in reliefs of complicated weaves. The Codex Mendoza contains pictures of spinning and weaving, and also bales of fiber taken as tribute by the Aztecs from the lowland tribes. Cortez sent many curious cotton fabrics back to Spain, where their excellence excited the admiration of a people not unfamiliar with the finest Oriental workmanship.

Coronado, in his memorable march to the Pacific, saw cotton under cultivation among the Pueblos. He forced the conquered tribes to furnish cotton mantles for his soldiers to break the force of the sun's rays on their armor. A town in New Mexico still bears as its name the Spanish word for cotton, algodon, as a memory of its ancient crop.

In most parts of the great South American jungle to which explorers have penetrated, cotton is twisted into cord, knitted in hammocks, and even woven in rough fabrics. I have examined excellent two-ply cotton yarn spun by the little known Akala tribe of the Upper Amazon.

In a paper issued by the American Museum of Natural History, I have shown that every method of decorating a web of cloth was known in Peru. The lapse of time necessary to achieve such a development from the first rude beginning of weaving must have been immense. Nor are there wanting other evidences of antiquity too numerous to mention.

HIGH CIVILIZATION IN PERU

Peru reached the highest development in textile science in this hemisphere. Indeed, her only rival for world supremacy was ancient India. Her sandy soil and almost rainless climate has preserved this record as perfectly as the Egyptian desert has saved the evidence of civilization along the ancient Nile. This whole land is dotted with archaic burials, and from these graves have been taken many fabrics.

These ancients used two kinds of cotton fiber. One is a fine white variety. The staple is very bright, a trifle finer in diameter than North American Upland and a trifle over an inch in length on the average. It is reasonably free from dead and immature fiber. There is a certain harshness, almost resembling wool in the staple. Great age no doubt accounts for some of this; but even the best modern cotton from Peru is not free from this objection. In spite of the efforts of English spinners to grow a fine staple here to rival our Sea Island, the chief use of the fiber today is as a wool adulterant.

The chief peculiarity of the second fiber is the deep reddish brown color of the lint. There is some evidence that this is merely a rogue of the white, but other authorities refer to it as a distinct species. A red wild cotton is found in the jungles of Yucatan, while varieties of white gossipium occur in the Amazonian forests. Perhaps the different grades represent separate origins and centuries of promiscuous cultivation have blended the strains.

This staple is much inferior to the white, although a certain interesting superstitious penchant for the poorer grade caused it to be spun in some of the finest yarns. It is singular to observe that the brown tint in certain Egyptian cotton is attributed by Sir George Watt to the mixture of this seed with our own Sea Island.

PROCESS OF SPINNING

The preparation of the fiber for spinning was entirely by hand. The seeds, and such fragments of leaf and twig adhering to the boll, were first picked out. The fiber was then gently pulled apart or teased so as to separate the individual seed hairs. These simple processes correspond to modern ginning and picking. Next, little bunches of fiber were pulled between the hands in much the same way that a cotton tester does to determine the length of staple. This naturally placed the hairs in approximate parallel relationship to each other, *i. e.*, carded them. As each small tuft was thus treated it was felted into a narrow ribbon or sliver. This was next broken into short lengths and formed into a cone. From the larger end of this cone fiber can be withdrawn in a carded condition and ready to be spun.

In spite of the simplicity of these processes the resulting fiber is in rather better condition than the product of our best machines.

The technique of spinning was the height of simplicity. A few fibers first withdrawn from the large end of the cone. The desired size of yarn determined the quantity. This would roughly correspond to a drawing. A degree of draft and twist converted this into a slubbing or roving. This was attached to the spindle, near the central band. These bands were often of clay, sometimes of hollow cane and in rare cases of hollow copper balls. Whatever the substance, they in no manner correspond to the true whorl placed at the tip of many primitive spindles to aid the insertion of twist. Their sole function was to prevent the cop of yarn from slipping off the spindle.

After the roving was attached to the spindle it was converted into yarn by twisting the spindle in one direction, while the partially completed yarn was turned in the opposite direction by the other hand. Pottery dishes often found in the graves may have been used to rest the points of the spindles during the operation, or they may have contained water for moistening the spinner's fingers.

DIFFERENT METHODS PROVED

Forming fibers into good yarn is done in some instances without even the aid of a spindle, the fiber being simply rolled between the palm of the hand and the naked thigh. Almost every tribe has a slightly different method, even where the tools used are very similar. The weight, shape, and position on the spindle of the whorls used in Peru today and those of ancient times are so different as to prove that the methods of spinning were quite distinct. The whorl and distaff method was intrusive in Spanish time. Each people, confronted with the necessity of combining short filaments into strong continuous threads, has evolved methods peculiar to their fiber requirements and consistent with their mechanical genius. Each step in this science must be as truly regarded as an invention as though the idea had been incorporated into the definite form of a machine. Of course, where it is necessary to reconstruct the technique of an ancient race from the implements found in the

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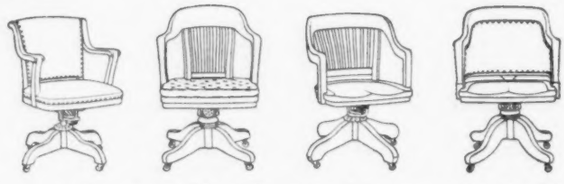

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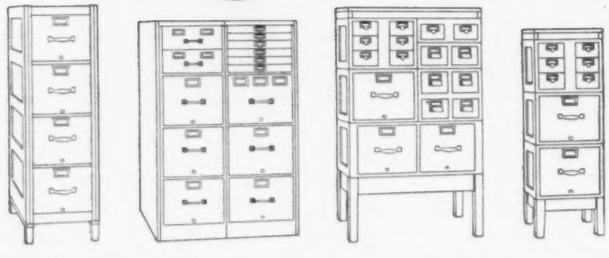

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graves, certain expedients and processes must be lost.

This much, however, is certain. No separate processes, such as rovings, have ever been found in the graves. The transition from the cone of carded fiber to the completed yarn was a continuous process, or series of finely graded movements. Accustomed as we are to the delicate adjustments and precision of modern spinning machinery, we naturally look for a certain degree of complexity in tools, used to produce fine yarns, even in hand spinning; but the explanation lies rather in marvelous sensitiveness and dexterity of fingers acquired through centuries of application of inherited skill.

It is characteristic of all hand-spun yarns to contain a larger amount of fiber and a greater degree of twist than

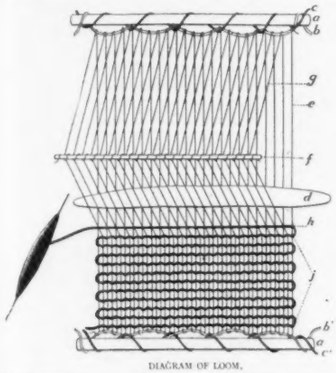


DIAGRAM OF LOOM.

is found in modern yarn of the same approximate diameter. They resemble ring frame rather than mule yarn. The counts were ascertained by comparison of diameter with modern yarn of known counts. The figures are the result of a series of comparisons made under magnification. Every effort was made to minimize the variation inseparable from the finest modern spinning.

It must be borne in mind that the counts, therefore, refer only to diameter. It is needless to say that the nature of fiber is to be considered in determining the degree of skill evident in making fine yarn. What is good spinning in one grade of fiber would be ordinary in a better grade, and vice versa.

The staple of ancient Peru was not quite so long as the cotton grown there to-day. The finest numbers spun from modern Peruvian cotton range between Numbers 50 and 70. Many examples as fine as Numbers 80 to 150 and a few examples between Numbers 200 and 250 occur among the ancient yarns. Even the finest counts are so even and well spun as to suggest that they do not represent the finest spinning of that day, but merely the best as yet discovered. From the same grade of staple I venture to assert better yarns were never spun than have been found in Peru.

Ply yarns appear very early in primitive spinning. Yarn was first used as cord, and the advantages of strength in ply yarn were understood centuries before spun fibers appear in weaving. In Peru, doubling and twisting reached a wonderful perfection. Wool and bast yarn are always two-ply in fabrics. Cotton was woven single-ply when lightness of texture was desired. Two, three, and four-ply yarns are quite common, and one example of a seven-ply was discovered.

The implement for double and twisting was the doubler spindle. The contents of two spindles were wound on this and as unwound, twisted by hand and again attached to a spindle ready for weaving. It seems almost incredible that such even twisting could be so simply done, but no other tools than the doubler have been found. The number of turns per inch was regulated by the future purpose of the yarn.

The three-ply are by all odds the finest. Two singles of rather slack twist have been combined with a third of tighter twist. The effect has been a very round yarn in which a greater percentage of the fiber strength has been maintained than would otherwise be possible. Some examples are as fine as 100 three-ply, possibly 120 three-ply. These yarns were used as warps for the finest tapestries. Some of these matchless webs contained 300 two-ply wool yarn to the inch. The beating-up must have been very severe considering the weight of yarn. How necessary fine, even, strong warps were, is quite evident in such perfect webs. Any unevenness would make such weaving impossible.

There are a few examples of wool warps in tapestry, but the finest webs always contained cotton. These old masters realized that warps of this fiber were the best and were not hampered by the foolish prejudice of today for "all-wool" cloth.

Photographs of yarn, especially in the finer counts, are most unsatisfactory. Little except the diameter of a small length can be shown; the subtle distinction of twist, evenness, etc., being lost in the plate. Realizing that these statements are intended for technical readers, fully qualified to pass upon their accuracy, I still must write that these yarns are the world's standard of perfection in cotton spinning.

FORM OF EARLY LOOM

The loom shown in the illustration is familiar in form to most textile readers. It is shown with a single heald forming a shed. A pick of weft has first been inserted, and the weave sword or batten is beating it up to the fell of cloth. Many Peruvian looms had two or more healds. Curiously enough, the leese rods are absent. A second implement, thinner than the batten, was sometimes thrust between pairs of warp, to beat up fine weft. It applied pressure at right angles to weft like the ancient comb and the modern reed.

Boiler Code of American Society of Mechanical Engineers

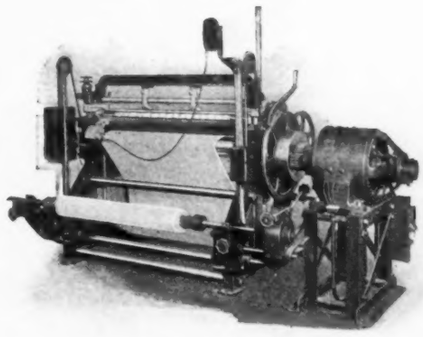
By S. F. Jeter, Hartford, Conn.

THE object of this paper is to point out the need for uniform rules governing the construction of steam boilers throughout the United States, and why the steam user would benefit by such uniformity, and to show how the boiler code of the American Society of Mechanical Engineers meets this need. No attempt is made to elaborate on the specific rules of the code or to show why these particular rules were adopted.

It has been stated that adoption of standards by law is necessary to govern individual opinion as to what may be considered safe and since the requirements must be uniform to be logical, and to secure the greatest return to the boiler purchaser, it follows that they should emanate from the same source. With the general agitation for State laws governing boiler construction, unless uniformity in rules is obtained each boiler shop will be able to build only for a few States, increasing the problems of design and manufacture which will result in added cost to the boiler user without compensating benefits.

FEDERAL COMMISSION IMPOSSIBLE

The question naturally arises at once, "From what source shall come rules to govern the construction of boilers for the entire country?" It would appear that if interference with States' rights did not enter the question, the appoint-



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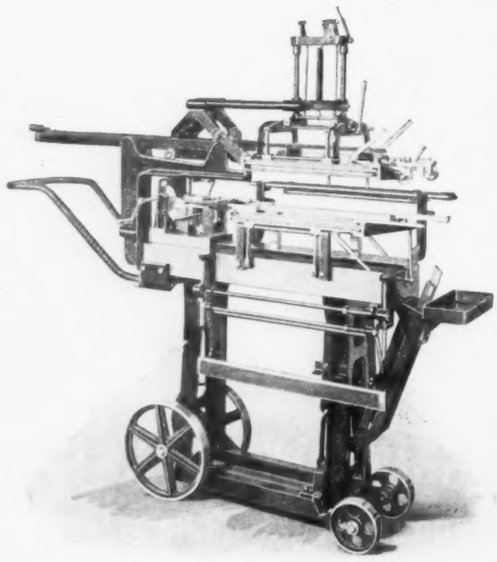

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ment of a commission by the National Government would be the way to decide the matter, but it is my belief that the manner in which the problem will possibly now be solved, if such organizations as your own will lend their full co-operation, is much better than the results that might be expected from the appointment of a national commission. A commission appointed for such purpose would naturally be given authority to decide positively all questions without regard to complaints of those who might be affected by their rulings, and the result might not be as expected or desired.

When a state passes a law governing the construction of boilers, the next step is to prepare a set of rules for the guidance of the boiler manufacturer, and a board or commission is usually appointed to draw up such requirements as may be deemed necessary. With each state acting independently in the matter there can of course be no uniformity in the rules, and none of the rules thus drafted can possibly be the best, for they would not represent the combined wisdom of the different boards drafting them. It is therefore evident that individual state boards, working independently, cannot hope to produce uniform rules, or those that may be considered the best, no matter whether politics enter their formation or not, and it is more than likely to.

The same effect as mentioned above in connection with a national commission is likely to be experienced with the appointment of a state board—that is, a board empowered to draft rules that will have the force of law is not so likely to be as attentive to complaints from those whose interest may be affected as a similar body engaged in the same work, but whose product will stand or fall on its merits without the force of law to aid it. No one person, or small group of persons, no matter how well informed they may be on the subject of boiler construction and operation, is fully capable of drafting a complete set of boiler rules that may be considered the best; and no matter how carefully any set of such rules may be drafted, they cannot be considered as permanently the best; for the art of boiler manufacture, like other lines of industry, is rapidly advancing, and any set of rules governing the construction of boilers must be changed from time to time in order to keep abreast of the advancement in the art.

COMMITTEE APPOINTED BY A.S.M.E.

The American Society of Mechanical Engineers, in 1911, recognizing the chaotic condition that was fast being approached by the separate states adopting rules governing the construction of boilers, appointed a boiler code committee to draft a set of such rules that might be used by the various states as a guide in the selection of rules to govern boiler construction when adopting boiler laws. The original committee was composed of six members, and after much work on the part of this committee, and several public hearings, at which intense interest in the subject was manifested by the representatives of many industries, it was decided to augment the original committee by the appointment of an advisory committee, which increased by four times the committee membership.

In addition to the increase in the size of the committee, which increase was made to obtain more certainly the views of most of those affected, an appeal had been sent to every engineer of prominence known to be posted on the subject of boiler design, to give his views as to how the boiler code should be drafted. It is thus seen that the boiler code of the American Society of Mechanical Engineers represents not alone the views of the boiler code committee of that society, which, with the advisory committee, was composed of several members representing practically every interest to be affected, but it represents the combined views of the engineering fraternity throughout the United States, and a number of foreign countries, and has the approval of the foremost engineering society of this country, as far as that society ever approves a document of this character.

It would therefore appear that the American Society of Mechanical Engineers' boiler code should be superior to any set of rules that has been put out, or may be put out by a state board delegated to perform a similar duty. The Commonwealth of Massachusetts was the first to adopt a complete set of rules governing the construction of boilers, and as pioneers in this field the work of the board of boiler rules of that state deserves the highest commendation. These rules were copied and improved upon by the state of Ohio, and the boiler code of the American Society of Mechanical Engineers had the benefit of the experience with both sets of rules after their practical application; and free use was made of every feature of these rules that had been demonstrated by practice to be good.

CODE NOT BEYOND CRITICISM

The boiler code is, of course, by no means beyond criticism, and no set of rules for a similar purpose may hope to be drafted without being open to criticism at some points; but it is perfectly safe to state that the American Society of Mechanical Engineers' boiler code is the most complete and logical set of rules governing the construction of steam boilers in existence to-day, and is advocated and backed by practically every interest connected with the manufacture and use of steam boilers.

The existence of the boiler code of the American Society of Mechanical Engineers and the hope of its nation-wide adoption to govern boiler construction has been mainly dependent on the support of those who would be most seriously affected. All complaints in regard to proposed rules during its compilation were most attentively listened to; and as an indication of the conscientious manner in which this work was done, it is suggestive that the staunchest supporters of this code are those most directly affected by its requirements, and the benefits to be gained by such supporters in its adoption are largely of an indirect character.

Another indication of the careful manner in which the boiler code has been drawn is the fact that so little real opposition has been met with in regard to its provisions. The members of this Association who are also members of the American Society of Mechanical Engineers will no doubt remember that one boiler manufacturer attacked it, and alleged that the code discriminated against his boiler and was to prevent fair competition between himself and a boiler manufacturer whose representatives were actively connected with the code work. No statement could be further from the facts than this. The manufacturers who were actively engaged in the work of compiling the boiler code were without doubt the ones who received the least consideration in regard to the possible effect of the code provisions on their standard designs or methods of construction. One manufacturer in particular, who was most actively engaged in this work, was compelled by the code requirements to make very extensive changes in his manufacturing equipment in order that he might bring his product up to the code requirements, although the changes required in the construction of his boiler were not at all radical.

NO PARTICULAR TYPE FAVORED

If your Association should decide to lend its support and influence in securing a nation-wide adoption of the boiler code, where state laws are to be enacted covering boiler construction, those members who are not conversant with the boiler code or who are not familiar with boiler design or the different types used at the present time throughout the United States, may rest assured that the boiler code of the American Society of Mechanical Engineers is absolutely free of the attempt to favor any particular type or design of boiler or particular method of construction.

The boiler code does not attempt to influence the size of pressure required for a boiler intended to meet the particular needs of a steam user, and the advice of your engineer in determining such questions is as much in demand as ever; but instead of being occupied in looking after details of boiler design connected with safety, your engineer will be free to make a more careful study of the possibilities in regard to economical operation, and it is in this direction that you really expect to receive returns from expenditures made in retaining a consulting engineer.

If the need for adopting the same set of rules in each state where laws are proposed to govern the construction of boilers is considered advisable,—and it does not seem possible that the least thought on the subject can lead to any other conclusion from the steam users' standpoint,—then the American Society of Mechanical Engineers' boiler code is practically the only set of rules available for such use. All disputed points in connection with these rules have been fought out with the parties interested, and a conclusion reached; and any attempt at selecting a different set of rules would mean that the same ground would have to be fought over again. It is more than likely that in the end practically the same conclusions would be reached if a like amount of care was used, as in the preparation of the boiler code.

APPROVED BY INSURANCE COMPANIES

The American Society of Mechanical Engineers' boiler code has already the approval of many of the largest steam users in the country, and it is surprising to find the number who are to-day ordering their new boiler equipment built in accordance with its requirements, when the short length of time that this code has been in existence is considered. The boiler manufacturers throughout the country have approved the code through their different organizations and the boiler insurance interests are unanimous in their approval.

It should be thoroughly understood that the boiler code is purely a code of rules by which the construction of new boilers may be governed and the safe maximum allowable working pressure for both old and new fixed, and that it has absolutely nothing to do with the law that is required to compel compliance with its provisions. There is nothing in the boiler code to prevent its use as an alternative for rules already used in a state, and that such an arrangement is entirely practical is evidenced by its use in this manner by the states of Ohio, Wisconsin and Indiana, and the city of Detroit, all of which will accept boilers built under code requirements in lieu of the construction called for by their own particular rules.

ADOPTED BY PENNSYLVANIA

On July 1st of this year, the state of Pennsylvania will require that all boilers used in that state, and which are not under municipal law, comply with the provisions of the American Society of Mechanical Engineers' boiler code, and the state of California is to take the same step at the first of the coming year; in fact, every state in the union that has a state boiler law, with the single exception of the Commonwealth of Massachusetts, has either adopted the American Society of Mechanical Engineers' boiler code or will accept boilers built under its provisions in lieu of their own requirements.

RULES NOT NEW

Since the boiler code has only recently come into existence, the impression might be gained that it consists of an entirely new set of rules just compiled for the purpose, but this is not so, for the boiler code committee studiously avoided the use in that code of any rule that had not been demonstrated by practical experience or elaborate tests to be sound; and while the rigid enforcement of the code provisions will no doubt indicate the need of slight modification that will be beneficial, it cannot be in any wise regarded in the light of a new and untried experiment.

It was not my intention specifically to mention any of the code rules in this paper, but it would not seem proper to close without calling attention to the sections on braced and stayed surfaces and circular flues and furnaces, which are without doubt the best and most logical rules on these subjects that have thus far been formulated.

ASKS FOR CO-OPERATION

In closing, I wish to call attention to the fact that the brunt of the fight for uniform rules to govern boiler construction has been carried on thus far by the boiler manufacturer, but since the steam user is the one who ultimately will derive the greatest benefit by the attainment of the desired end, in that he will secure the greatest return for his investment in boiler equipment, it would seem only right that, as the project has been so auspiciously launched, the steam users, through such associations as your own, should lend their full co-operation in carrying the work to a complete and successful finish. The question is not, whether the steam user shall seek the enactment of boiler laws, but, when such laws are thrust upon him, whether he shall demand that a known set of rules governing boiler construction be used, or be content to sit still and take whatever rules happen to be furnished? Will you feel safe to have the construction of boilers you may purchase governed by a code put out by the foremost engineering society of the country, and like that which will be used by a majority of your competitors and purchased under as favorable conditions, or do you desire special frills that may be demanded by local rules at a considerable advance in price over the standard product?

The American Uniform Boiler-law Society has been organized for the purpose of urging the adoption of the boiler code of the American Society of Mechanical Engineers, where a state is considering the adoption of laws governing boiler construction, and its membership is composed of steam users, manufacturers of all classes of materials used in boiler construction, boiler manufacturers and insurance companies. Individuals, companies or associations may become members of this society. Its purpose is not to secure legislation on boiler construction or operation, but where laws are in effect or are to be enacted for this purpose, to urge the use of the American Society of Mechanical Engineers' boiler code, to the end that uniformity may result. I would suggest a most careful investigation of the aims and work of this society by your Association, with a view of becoming a member.

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CORRESPONDENCE SOLICITED

Cotton Handling in Southern Warehouses

By John R. Fordyce, Little Rock, Ark.

IN recent years great improvements have been made in the South in the construction and arrangement of cotton compresses and warehouses. They have been constructed of reinforced concrete or according to slow burning construction methods. Where possible the warehouses have been arranged in groups with fire-lanes or streets between them. This arrangement in large plants takes a great deal of room, and necessitates the internal moving of bales over distances which are much too great for the old-time hand truck with one man to each bale.

COTTON TROLLEY INSTALLED

The large group of warehouses of the Memphis Terminal Corporation was the first to install what is known now over the South as the cotton trolley. This was designed and installed by Daniel Breck of St. Louis. Some idea of this trolley and the great saving it makes in handling cotton is gained by the following descriptions.

JOHN R. FORDYCE

This plant covers an area of one hundred and seventy acres. Practically all of the cotton comes in on railway cars, and is unloaded on the receiving platform. It is then hung on the trolley hooks and runs by gravity to the doors of the warehouse. When cotton is taken out of the warehouses and carried to the compress, it is again hung on the trolley and a mule pushes a lot of bales to the press room. One mule and his driver push 4,000 bales daily, an average distance of one-half a mile in ten hours. Compared to this, it formerly took one hundred mules, one hundred drivers and one hundred drays to do approximately the same work. This system has been in active operation since 1907. In 1913-14 this plant handled, in two months and nineteen days, 14,083 cars, containing 541,384 bales of cotton.

ANOTHER METHOD OF HANDLING

In 1912, in Galveston, Texas, the Galveston Cotton Compress and Warehouse Company built a new plant entirely of reinforced concrete, which occupies seven square blocks of ground on a lot 712 x 1,120 feet. The compress is located in the center; the railways extend down the long sides of the property. Cotton is received on unloading platforms where it is weighed, sampled and graded; it is then hung on the trolley, which in this case is level, and pushed by hand until it comes opposite the door of the warehouse. Hand trucks are now used to take the bales into the warehouse. When sold the bales are taken out of the warehouses, hung on the trolleys and carried into the classing shed. Here a saw-tooth roof gives a perfect light. This is called the display room of the plant; here the buyers inspect and accept or reject the bales. From here the bales are carried to the press room, and after compressing are stored or taken at once to the cars or to the wharves. One man can easily push from six to ten bales on the trolley and go at a fast walk, whereas one can only push one bale on a hand truck and then only at a rate of one hundred feet per minute. It is estimated by J. E. Mitchell, the manager of this plant, that his labor cost has been cut in half by this installation.

BALES PUSHED BY HAND

The next trolley system to be installed was in the Merchants' Compress at Houston, Texas. Here the plant was already built and the surface of the ground was very uneven. A gravity system was devised with power operated inclined elevators to give the bales the proper elevation. This had to be changed later on account of the high winds. When the wind came from the gulf the bales ran away and when a norther blew they would not run at all. Now the line is placed at a uniform distance from the surface and the bales are pushed by hand. Bales are brought out of the cars by hand trucks, transferred to the trolley and pushed by hand to the receiving sheds, and from there to the warehouses. The empty trolleys are pulled back by a man, who can easily return forty or fifty. This plant has about seven thousand feet of trolley.

TROLLEY AND ELECTRIC TRUCK COMBINED

Another installation is in the plant of the Merchants' and Planters' Compress and Warehouse Co., of Galveston. This plant is unique in that it combines both the trolley and the electric truck system of cotton handling. Bales are brought to and taken away from the trolley by the electric trucks, and a large lot of bales can be pushed along on this level system by the electric truck. The same truck that would be powerful enough to pull a train of trailers with twenty-four bales of cotton can push eighty bales if they are hanging on a trolley. In this installation the trolley tracks are hung by brackets from the walls of the warehouses and bales can be dropped directly in front of the door.

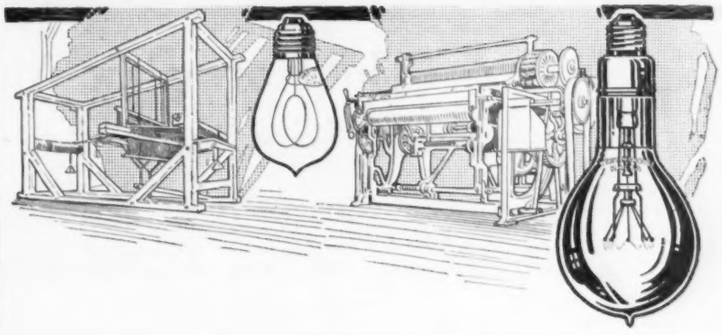
The management of this plant is now planning to install a power rope system by which it is expected to hook a bale at the door of the warehouse and drag it back along the aisle of the warehouse or up to the top of a pile of bales. When this system is installed the hand truck will be almost out of business in this plant.

OTHER WAREHOUSE INSTALLATIONS

The new cotton storage warehouse now under construction by the Candler interests in Atlanta, Ga., is installing a trolley system, and the new plants now under construction in Augusta and Savannah are each considering the installation of a trolley system and will perhaps have decided on it before this paper is presented.

A paper with the title of "Cotton Handling in Southern Warehouses" would not be complete unless a mention was made of the new and mammoth plant now being built in New Orleans by the State of Louisiana, but as this plant is not yet completed, no data are now available as to cost of handling. A trolley system would, no doubt, be a great advantage to cost reduction in this plant; but electric storage battery trucks are proposed and will be given a through try out by the engineer.

The City of Houston, Texas, is con-



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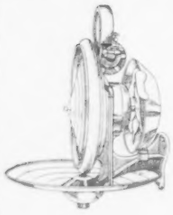

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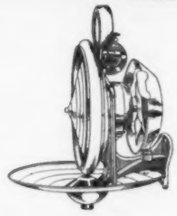

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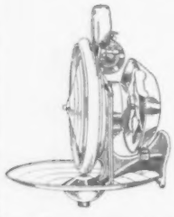

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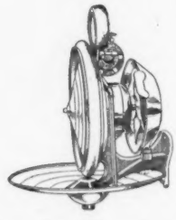

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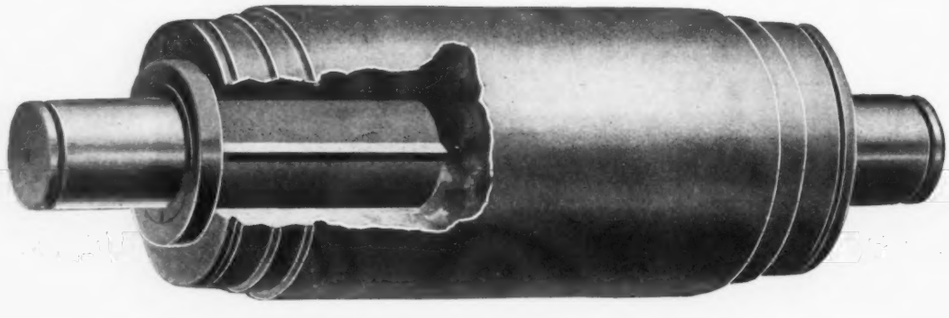

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structing a cotton wharf located on its ship channel. Large concentration sheds into which bales are unloaded from the cars are to be equipped with the cotton trolley and bales will be carried directly to ship side. This plant will be in operation next fall.

It is hoped by the author of this paper that the mills of The National Association of Cotton Manufacturers may see something in this paper which may benefit them in cotton bale handling around their plants.

The cost of the track and supports varies according to materials of construction from $1.50 to $4 per foot, while the trolley and hooks average about $10 per set. We have found in compress and warehouse work that when we have to carry bales over 250 feet, a trolley system is a better proposition than hand trucks. Of course the number of bales to be carried is a vital factor in the answer as to whether or not it will pay to put in a trolley.

Does the Comber Remove Short Fibers?

By William E. Hatch and William Smith, New Bedford, Mass.

THERE has recently been considerable discussion as to what the comber does to the cotton fibers as they pass through the machine. It has generally been considered heretofore by textile men that in passing cotton through the comber considerable of the short fiber is removed, but this has been denied recently by high authority. We, who believe that the comber does do what has always been claimed for it, will try to show by this paper, based on an exhaustive series of tests, that our belief is not without justification.

Let us consider first how the comber acts upon the cotton in addition to removing short fibers. It removes the small bunches, nits, leaf or other foreign matter, which may have passed through the card, straightens out the fibers, and lays them parallel. In straightening out the matted or snarled fibers the comber will break more or less of them, according to their condition as they come to the needles. Some of these broken fibers will pass through with the good fiber, especially those broken by the detaching roll in drawing the fibers through the top comb.

IMPORTANCE OF SETTINGS

There are several settings or changes which will alter the amount of waste taken out, the principal ones being the position of the top comb and the nippers. The greater the distance from the top comb to the nipper the greater the amount of waste removed and the longer the fiber in the waste. To get the best results in combing, the top comb should be as close to the leather detaching roll as possible without touching, and as close to the segment as possible. The nipper should then be set according to the amount of waste required. For high per cent. of waste set the nipper wide; for low per cent. of waste set close. The distance from top comb to nipper has more effect on the per cent. of waste removed than any other setting.

METHOD OF TESTING

The following tests were made to show the per cent. of waste taken out, using different stock, different settings, and different conditions.

The first test was made to show that the comber does remove short fibers. In making the test a good even running cotton, 1½-inch staple, was used, and a certain amount of colored short fiber added. The short fiber was mixed at the lap machine before going to the comber. The colored stock was prepared by running a light lap on the picker, unrolling it and folding it over so as to make a strip 8 inches wide. This was fed at the back of the card, which was geared to make a 25-grain per yard sliver. The trumpet was removed from the front calender rolls and the web run through the width of the rolls, making a thin ribbon about 6 inches wide, weighing 25 grains per yard. This ribbon of colored stock was fed in between two laps on the lap machine or laid on the top of the two laps. In making the lap for the comber two laps weighing 250 grains per yard were doubled together and either one or two thicknesses of the colored stock run in between them or laid on them at regular intervals, running about 1½ yards of white stock, then 1½ yards with the colored mixed in. With one

WILLIAM SMITH

thickness of colored stock there was about 4.75 per cent.; with two thicknesses, 9 per cent.

TESTS ON NASMITH COMBER

This lap was then run in the Nasmith comber, using the regular settings with the nipper set 8-32 of an inch from the detaching roll. The top comb was set as close to the leather detaching roll as possible without touching, with the points of the needles 1-16 of an inch from the steel detaching roll. The feed ratchet was set to take five teeth. The per cent. of waste was taken several times while running with this setting, giving the following results:

Test No. 1:

Average per cent. of waste when running all white	7.78
Average per cent. of waste with 9 per cent. colored between the laps.	14.8
Average per cent. of waste with 9 per cent. colored laid on top	15.4

This showed an increase of 7.02 per cent. waste with the colored stock between the white, and 7.62 per cent. with the colored stock laid on top.

Test No. 2. The nippers were then changed to 13-32 of an inch and all other settings made the same as on Test No. 1, with the following results:

Average per cent. all white	12.3
Average per cent. with 9 per cent. colored between	18.98
Average per cent. with 9 per cent. colored on top	19.5
Average per cent. with 4.75 per cent. colored between	15.7
Average per cent. with 4.75 per cent. colored on top	16.5

This shows an increase of 6.68 per cent., with 9 per cent. colored between; 7.2 per cent. with 9 per cent. colored on top; 3.4 per cent. with 4.75 per cent. colored between, and 4.2 per cent. with 4.75 per cent. colored laid on top.

These tests showed that the per cent. of waste was increased in each by the addition of short stock to the lap. In changing from white to mixed the change could easily be seen, the sliver at the front showing a slight bluish cast and the waste changing from white to blue and being much thicker while the colored stock was running through. The color showed in a straight line across the waste as soon as the colored stock passed to the cylinder needles.

Test No. 3. The next test, or No. 3, was made by changing the distance from the nipper to the top comb and detaching roll, keeping all other settings the same all through. The first setting was made with the nipper 14-32 of an inch from the detaching roll and then closing up 1-32 of an inch at each test down to 8-32 of an inch, with the following results:

Nipper set 14/32 of an inch, average per cent.	17.6
Nipper set 13/32 of an inch, average per cent.	15.87
Nipper set 12/32 of an inch, average per cent.	14.7
Nipper set 11/32 of an inch, average per cent.	13.25
Nipper set 10/32 of an inch, average per cent.	12.06
Nipper set 9/32 of an inch, average per cent.	10.05
Nipper set 8/32 of an inch, average per cent.	7.7

This test shows that with the nippers set close the average per cent. was 7.7, and without changing the amount of combing the percentage of waste was increased to 17.6 or 9.9 per cent. The only change made in the setting was the distance from nipper to top comb and detaching roll. The waste or noils made with the close setting was practically all short fiber, gradually increasing as the nippers were opened.

Test No. 4. Test No. 4 was made by setting the nippers to 8-32 of an inch, the top comb as close to the detaching roll as possible. The per cent. of waste was taken several times at this setting, then the nippers were opened to 13-32 of an inch, without resetting the top comb. This kept the top comb at the same distance from the nippers, but farther away from the detaching roll. The per cent. was taken several times with this setting; then the comb was set in its correct position, or as near the detaching roll as possible, with the following results:

Nipper set to 8/32 of an inch, average per cent.	7.8
Nipper set to 13/32 of an inch, top comb same	11.
Nipper set to 13/32 of an inch, top comb set	16.5

This shows that the distance from the nipper to the top comb has the greater effect on the amount of waste taken out.

EFFECT OF FEEDING

Test No. 5. Test No. 5 was made by feeding forward different amounts per nip, commencing with four teeth on feed ratchet, feeding .2 of an inch per nip; then changing to five teeth, or .25 of an inch per nip; then six teeth, or .30 of an inch per nip, with the following results:

Feeding four teeth or .2 of an inch per nip, average per cent.	15.07
Feeding five teeth or .25 of an inch per nip, average per cent.	15.6
Feeding six teeth or .30 of an inch per nip, average per cent.	16.26

Test No. 6. Test No. 6 was made using different top combs, with the following results:

Single top combs 28's needles set 55 per inch, average per cent.	18.5
Single top combs 30's needles set 71 per inch, average per cent.	20.65
Single top combs flat needles No. 23 x 29, set 63 per inch	19.1
Single top combs flat needles No. 21 x 27, set 46 per inch	17.5
Double top comb 28's needles set 55 per inch	17.
Single same setting	16.7

STRENGTH OF YARN

Test No. 7. Test No. 7 was made for strength of yarn with nippers set close, taking out a low per cent. of waste, and set wide, taking out a high per cent., with the following results:

		Counts.	Break.
Nipper set at 8/32 of an inch, aver. per ct.	9.36	593.8	34.7
Nipper set at 14/32 of an inch, aver. per ct.	17.9	60.37	37.1

The comparative break for the close setting would have been 33.89; that is, if the 59.38 had sized 60.37, the same as the wide setting, the break should have been 33.89 instead of 34.7, showing an increase in the breaking strength of the wide setting over the close setting of 3.21 pounds, or about 9 per cent.

EFFECT OF HUMIDITY

Test No. 8. Test No. 8 was made with different humidity conditions, first running with the air dry, then changing to moist, with the following results:

Temperature.	Relative.	Actual.	Aver. per ct.
71	47	3.9	11.3
73	64.7	5.7	10.7

This shows a slight increase when running with dry conditions.

EFFECT OF PREVIOUS PROCESSES

Test No. 9. Test No. 9 was made using a different number of processes of drawing before combing, using 1, 2 and 3 processes between the card and sliver lap machines, with the following results:

1 process of drawing, average per ct.	13.7
2 processes of drawing, average per ct.	10.44
3 processes of drawing, average per ct.	9.58

This shows a difference of 3.26 per cent. between 1 and 2 processes and .86 per cent. between 2 and 3. With two processes of drawing, the lap ran off well on the comber; with three processes the lap licked considerably.

Test No. 10. Test No. 10 was made using two different weight laps, one weighing 500 grains per yard, the other 600 grains per yard, with the following results:

500 grains per yard, average per cent.	12.47
600 grains per yard, average per cent.	13.2

This shows an increase of .83 per cent. when running the heavy lap.

The above tests were all made on the Nasmith comber with the following general settings:

No. 1. Cylinder set with front of plain segment 1⅛ inches from the steel detaching roll at 2½ on index.

No. 2. Nipper crank stud set at 37⅛ on index.

No. 3. Nipper plate to detaching roll from 8/32 of an inch to 14/32 of an inch at 19 on index.

No. 4. Nipper to cylinder needles to 25/1000 of an inch at 33 on index.

No. 5. Nipper to open No. 27 on index.

No. 6. Amount nipper to open 12/32 of an inch at No. 19 on index.

No. 7. Top comb needles set 1/16 of an inch from the steel detaching roll, and the depth set so that a 6/1000 gauge under the points raised the gauge ⅛ of an inch from the front steel detaching roll. The comb was set at about ⅝ of an inch from the front of the comb arm.

No. 8. Feed rolls set as far back as the slots would allow.

No. 9. Detaching roll to move back at 1 on index.

No. 10. Leather detaching roll set as close to top comb as possible without touching, and to swing backward at 20 on index.

No. 11. Roll clutch to move at 38 on index, and to be fully in at 19 on index.

These settings are the same as given in the general instructions sent out with the machine with the exception of setting No. 1. This setting is given in the instructions as 2½ inches at 2½ on index. This is right for short and medium length cotton, but for long cotton it takes out too much long fiber with the waste. This is caused by the tail ends of the fibers which are held by the detaching rolls being caught by the rear rows of needles on the cylinder pulling them out and passing them out with the waste. By setting the cylinder 1 inch forward this is avoided.

TESTS ON OLD STYLE HEILMANN

The following tests were made on the old style Heilmann comber to show the difference in amount of waste removed with different settings and with short stock mixed in with the long. The same method was used in mixing the short stock as on the Nasmith comber.

Test No. 1. Test No. 1 was made using a 280-grain lap of white cotton and mixing 10 per cent. of short colored stock, with the followng result:

Running all white cotton, average per cent.	18.7
Running 10 per cent. colored short, average per cent.	27.2

an increase of 8.5 per cent.

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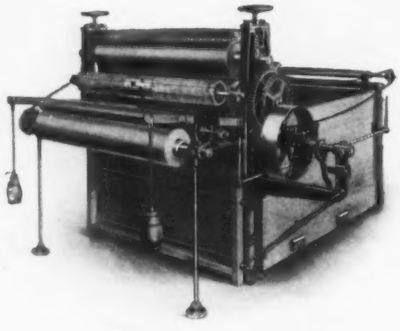

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The following settings were used in making the above test:

No. 1. Cylinders set with front of segment 1⅛ inches from detaching roll at 5 on index.
No. 2. Feed roll from detaching roll, 1-15/16 inches.
No. 3. Nipper plate from detaching roll 1⅛ inches.
No. 4. Stop screws from nipper stands 5/16 of an inch.
No. 5. Nipper from cylinder needles 21 gauge.
No. 6. Nipper to close at 9 on index.
No. 7. Top comb set at 30 degrees to a 21 gauge from segment, and as close to leather roll as possible.
No. 8. Top comb down at 4½ on index.
No. 9. Feed to commence at 4⅛ on index.
No. 10. Detaching roll to move forward at 6.

Test No 2. Test No. 2 was made by changing the position of the top feed roll, first setting it as far back as possible, then as far forward as possible, with the following results:

Top feed roll set back, average per ct. 18.
Top feed roll set forward, aver. per ct. 16.7

This is a setting that is not usually considered as affecting the amount of waste taken out. In a great many cases, when moving the bottom feed roll for different length cotton or different weight laps, the top feed roll will be allowed to remain in the same postion. The position of the top roll affects the distance from the bite of the feed roll to the bite of the detaching roll.

Test No. 3. Test No. 3 was made with the nipper and feed roll in different positions, with the following results:

With nipper set 1¼ inches from detaching roll and feed roll 1⅞ inches from detaching roll, the average per cent. was 17.
With nipper set 1⅝ inches from detaching roll and feed set 1-15/16 inches from detaching roll, the average per cent. was 18.5.

When making this test the position of the top roll was not changed. This shows a much shorter range of change than was made on the Nasmith machine. Settings were made with nippers 1⅛ inches and 1 3-16 inches from detaching roll and with feed roll 1¾ and 1 13-16 inches, but the detaching roll would not draw the cotton through and a high per cent. of waste was made.

Test No. 4. Test No. 4 was made by changing the angle of the top comb with the following results:

Angle of top comb 35 degrees, average per cent. ..... 18.
Angle of top comb 25 degrees, average per cent. 13.7

This shows an increase of 4.3 per cent., with the increase in angle of comb. This setting will usually make the greatest difference in the amount of waste removed.

Test No. 5. Test No. 5 was made by changing the time of feeding forward and time of dropping the top comb, with the following results:

Feeding at 4.5 comb down 4.5, average per cent. 17.7
Feeding at 5.5 comb down 4.5, average per cent. ..... 22.
Feeding at 5.5 comb down 5., average per cent. ..... 20.
Feeding at 5.5 comb down 5.5, average per cent. 18.5

This shows that the time of feeding and top comb dropping both affect the amount of waste removed. Feeding earlier or later is one of the usual ways of changing the amount of waste, but will not always give the results required unless the time of dropping the comb and nipping is correct. In the above test feeding was made at 5½ which is very late. With the feed commencing at 5½, it would not be completed before the detaching was completed or the nipper closed, unless both of these timings were made late, and would give a large amount of long fiber in the waste. The time of feeding forward is usually from 4 to 5 on index, and the time of top comb dropping should not be later than 5.

Test No. 6. Test No. 6 was made by closing the nippers at different times, with the following results:

Nippers closing at 8½, average per ct. 17.1
Nippers closing at 9, average per ct. 17.5
Nippers closing at 9½, average per ct. 19.

This shows an increase of waste with the nippers closing later, the greatest difference being between 9 and 9½. This setting will not always give the same result, as it depends to some extent on the time of detaching. If detaching is late, closing nippers late will not change the per cent. of waste. Increasing the amount of waste removed by this method does not increase the quality of the work produced, as the increase is usually long fiber.

The changes, which give the best results on the Heilmann comber, are changing angle of top comb, position of top comb, distance from detaching roll to feed roll, distance of detaching roll to nipper plate and time of feeding. The time of dropping the top comb and time of closing the nippers will also affect the amount of waste, but changing at these points is not good practice. If top comb is dropped too late, it will allow parts of the fiber to pass through without being combed properly. By changing the time of nipping later to increase the amount of waste makes a ragged break between the detaching roll and the nipper, which leaves some loose long fibers in the fringe of the lap at the nippers which will be combed out by the cylinder needles and go into the waste.

TESTS ON WHITIN COMBER

Tests were made on the Whitin high-speed comber similar to those made on the old style Heilmann machine with practically the same results.

Test No. 1 was made using a 450-grain lap, adding 35 grains or 7.2 per cent. of colored short stock. With nipper plate set 17-16 inches from detaching roll, and feed roll set 1 15-16 inches from detaching roll, with the following results.

Average per cent. running all white.. 13.4
Average per cent. running with colored added..... 20.5

Showing an increase of 7.1 per cent. when running with the colored short stock added.

Test No. 2 was made using a 400-grain lap, adding 30 grains, or 7 per cent. of colored short stock with nipper set 17-16 inches from detaching roll, and feed roll set 2 inches from detaching roll, with the following results:

Average per cent. running all white.. 14.4
Average per cent. running with colored added..... 20.3

An increase of 5.9 per cent. when running with the colored stock added.

Foreign Commerce in American Textiles

By Frank A. Vanderlip, New York

I AM glad to meet a body of men who are representative of one of the great industries of the country. In amount of capital invested, in number of people employed, in its importance to our economic life as supplying one of the chief necessities, and in its growth and technical progress, the cotton goods industry is up in the first rank. I know of no group of business men who have made a better record for themselves, all things considered, than the cotton goods manufacturers of this country. They have built up the industry under serious disadvantages as compared with their competitors abroad.

I saw a few days ago in an English newspaper a statement by an English manufacturer who had just returned from the United States, in which he expressed admiration for American cotton mill management, and declared that some of its methods should be adopted in England. There is abundance of evidence that American manufacturers, inventors and machinery-builders have made important contributions to the progress of the cloth-making art, and at this time, when nations are reflecting upon the value of industrial independence as they have not had occasion to do in a generation, all this testimony to the efficiency of our cotton goods industry is very gratifying. Aside from its dependence upon foreign dyes, it is upon a sound economic basis, and although it is easy to understand how the dye industry came to develop originally elsewhere, it is impossible to believe that the United States will long allow the annual production of billions of dollars' worth of goods to be embarrassed by the want of $10,000,000 or $12,000,000 worth of dyes, when the dyes

FRANK A. VANDERLIP

can be made out of materials that we have heretofore wasted.

If there ever was a time for conferences, and for the cultivation of a spirit of unity and co-operation among American business men, and all classes of Americans, that time is now. We are not as yet in the war, and we hope that, without sacrifice of honor and self-respect, we may be able to remain out of it, but in no event can we escape the effects of it, and the war is so stupendous an affair in the world that those effects must be very great and far-reaching.

SITUATION IN FOREIGN COUNTRIES

The nations with whom our trade is most important are banded together in two groups, pledged to support each other at least to the end of the war, and beyond that nobody can tell what their economic alliances or economic policies will be. We know, however, that the passion for national strength and self-sufficiency has been everywhere strengthened, and that the instinct of self-protection will tend to keep the alliances alive. We may expect also that the control of economic conditions and policies will be more highly centralized than before; in short, that trade and industry in these two groups of nations will be more highly organized and more harmoniously directed than before.

The stress of economic competition will not be lessened by the war. On the contrary, there will be in each country a greater incentive than ever existed before to recover lost ground and assure the national position. There will be a sharper spur upon effort, and a more strenuous demand for efficiency, in every industry, than was known before. The supremacy of Germany in the dye industry, which had its origin in England, has with tremendous emphasis brought home to England the necessity for the application of science to industry and for more scientific instruction in the schools.

NEW OPPORTUNITIES

The war unquestionably opens new opportunities to us. As far as conditions outside of the human element are concerned, we should be in a better competitive position after the war than before. We shall have largely increased our wealth, reduced our indebtedness abroad and perhaps have reversed our position from a debtor to a creditor nation. We shall have much increased our productive capacity in many lines of manufactures. Interest rates are likely to be at least as low in the United States as elsewhere, which has not been the case in the past, and taxes should be lower in view of the fact that the budgets of Europe will be doubled. And, finally, there will be the effect in Europe of the reduction of the working forces by death and disabilities, and the loss of indispensable, highly trained, technical men. These definite factors in the situation seem to favor continued development in this country and an expansion of our trade with other countries.

The vital question is, What effect will the experiences through which they are passing have upon the people of Europe, and what effect will the conditions now prevailing in the United States have upon us? If the experience of Europe gives discipline and mental stimulus to the people, if it awakens new ambition and resolution, and develops a new national spirit of devotion and unity, the debts and taxes will not retard their progress. And, on the other hand, if our people do not recognize the temporary character of our present prosperity, conserve its benefits to strengthen us in the future, and adapt ourselves readily to changing conditions, we shall be in a weaker position after the war than we were before, for we shall be upon an artificial level of costs, a level above the rest of the world.

GROWTH OF INDUSTRY

The cotton goods industry is based upon a raw material of home production, and much the greater part of our huge production of that raw material goes abroad for manufacture. Rapid as has been the growth of cotton manufacturing, particularly in the last fifteen years, the expanding home market has taken about 95 per cent. of the goods produced. The total amount of cotton goods exported by all the manufacturing nations in the last year of normal trade, 1913, was approximately $1,250,000,000, of which the United States, producing most of the raw cotton, contributed $54,000,000, or less than 5 per cent., and these are our highest figures for the exports of any one year. Four countries led the United States, to wit: Great Britain with $618,000,000, Germany with $120,000,000, France with $79,000,000 and Japan with $58,000,000. Switzerland was close to the United States with $50,000,000. After these in order are Italy, $46,000,000; India, $39,000,000; Netherlands, $32,000,000; Austria-Hungary, $27,000,000; Russia, $23,000,000, and Belgium $20,000,000. None of these, except India and Russia, is a producer of cotton.

In the last year, under the conditions incidental to the war, there was a heavy reduction of importations of cotton goods by nearly all countries. Germany, Austria-Hungary and Belgium were practically out of the export trade. Great Britain's exports fell off one-third, those of France two-thirds and declining trade was the rule. The United States, confining the calculation to piece goods, made a total gain of 11 per cent., which is not large under the circumstances. Great Britain's exports of piece goods to South Amer-

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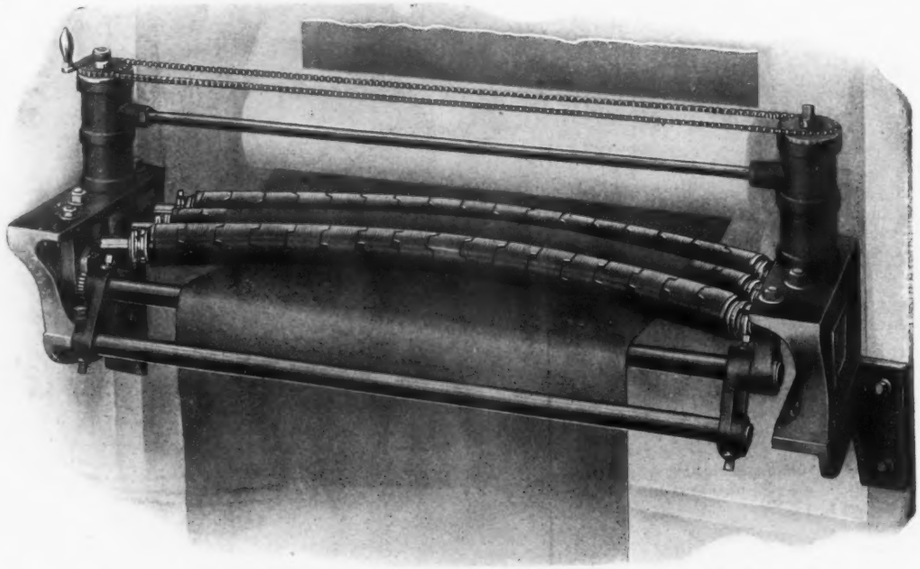

Expander Attached to Calender showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, and by others still pending, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

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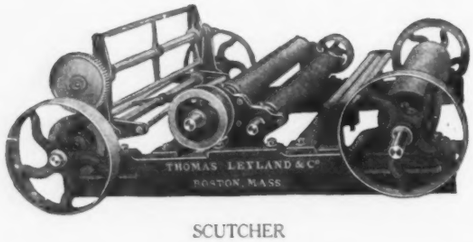


SCUTCHER

PORTABLE PIECE ENDSEWING MACHINE

ica in 1915 were about one-half those of 1913, but at that they were $19,000,000, which compares with $3,688,000 from the United States. In the early part of 1915, however, buying was extremely light and we fared better in the latter part of the year, and I understand that in 1916 our sales are making a much better showing.

I would not assume to teach the members of this Association anything about the economics of cloth-making, or to comment upon this apparently meager showing of exports in a critical spirit. I have already expressed my appreciation of the competitive conditions under which the cotton goods manufacturers of this country have labored. You will understand, however, that as those of us who are actively interested in the effort to build up foreign trade look over the field of possibilities we long for a better showing in cotton goods. It is along the line of normal development that we shall export less of raw cotton and more of cotton goods. We do enough of it to show that it can be done with a margin of profit, and there are, therefore, no insuperable obstacles to our trade growing much larger. It does not grow faster because we do not go after it as hard as we might.

Through the branches which the City Bank has established in Latin-America, we have had opportunity to make a survey of the cotton goods trade. Our people report that American goods stand well as to quality; that where the trade is regularly supplied and the brands are established they can be sold at a profit. Their recommendation is that the trade be cultivated in a co-operative manner, by the formation of a Cotton Goods Export Association representative of the American industry, which will open salesrooms in important centers, make an extensive display of goods, regularly visit the dealers and stay by the enterprise year in and year out as though the trade was as important to you as it is to Lancashire.

A PATRIOTIC EFFORT

You will pardon me if in my zeal for this general cause of building up American exports I urge that such a proposal should not be judged solely upon the prospect for immediate individual profit. This is a matter of national concern. It appeals to patriotic motives. The country looks to the managers of its great industries to be something more than traders and manufacturers for private profit. It expects them to be truly representative of the national interests, and to seize upon national opportunities. The pressure for the Government to enter upon various socialistic experiments is prompted by the instinct for national organization and the wish to see national interests safeguarded and forwarded. In many instances these interests can be most effectually safeguarded and forwarded by organizations of business men, or, where governmental authority is required, by the cooperation of Government with business organizations. The situation to-day as to dyestuffs presents one of these national interests, the shipping problem presents another, and the situation as to our export trade, and, if you please, as to our trade in cotton goods, presents another. These problems are larger than questions of self-interest; they are matters of public policy, problems in statesmanship. We have an unusual opportunity now in Latin-America, and what each branch of trade does with its opportunities concerns every other branch; indeed it concerns the general rapprochement between the United States and these peoples with whom we have long desired closer commercial relations. These peoples are more receptive and responsive than they have ever been before. The market is a growing one, and when our goods are established there they will be sold on their merits at a fair price.

TENDENCY IN COTTON MANUFACTURING

The cotton goods industry illustrates in many ways the progress and problems of all the industries, and the general economic tendencies of the time. The amount of capital employed in manufacturing cotton goods in the United States increased from $460,842,772 in 1899 to $822,237,529 in 1909, or 78.4 per cent. The average number of wage-earners in the industry increased only 27.2 per cent. in the same period, but the total of wage payments increased from $85,126,310 to $132,859,145, or 56.1 per cent. The production of cotton goods increased 38 per cent. The history of this, as of all industries, shows that capital is a constantly increasing factor in its progress. In 1830 the capital investment was $651 per employe, in 1880 it had risen to $1,207 per employe; in 1899 it was $1,545 and in 1909 it was $2,170. In these ten years, while the production of cotton cloth was increasing by 38 per cent., the population of the country was increasing by 21 per cent. As exports and imports remained about the same, these figures show that the people of this country consumed substantially more cotton cloth per head in 1909 than they did in 1899, and since cotton cloth is a class of goods used by everybody, there could hardly be better evidence of widespread prosperity and an increasing degree of general comfort and well-being than this.

The increasing employment of capital in the manufacture of cotton goods has never meant that fewer wage-earners were required in the industry. The number of employes has been increasing, their pay has been rising, the production of cotton cloth has been greater, and the distribution of cotton cloth to the millions of all occupations throughout the United States has been greater as a result of the improved facilities which capital has supplied.

At present all attention seems to be centered upon ownership, as though a widely distributed proprietorship assured an abundant and widely distributed supply of goods; but it does not. The new Trade Commission has been conducting an inquiry and finds that an astounding number of business concerns are carried on practically without profit, and that a still more astounding number make no analysis of costs and do not know whether they are making a profit or not. The Commission rightly considers that this state of inefficiency is not a matter of mere private interest but one also of vital public interest. It is not probable that higher wages, lower prices or industrial progress will come from this class of proprietors. We cannot hope through this class of careless, uninformed proprietors to meet the competition of the future.

We cannot stand still. Population increases and presses upon the sources of subsistence. We cannot hold our own, saying nothing of progress, unless our methods of production and distribution are constantly improved. All that inventive genius, backed by ample capital, has been able to do in the manufacture of cotton goods, has not overcome the rising price of raw cotton in recent years. Likewise in the last fifteen years every industry has been struggling with the higher costs of food and raw materials. They are the chief influence back of this rising cost of living.

ORGANIZATION IMPROVEMENT

No opportunity to improve the economic organization, both for production and distribution, should be neglected. We must eliminate the friction and waste. Here is a great lesson that our government administrators, and back of them the voters of America, must learn. We cannot afford to oppose or penalize highly organized, large scale production, for the sake of preserving small scale operations, when large scale production is clearly more effective. The public must have better service than incompetent employers, ill-equipped and poorly located establishments, mediocre ability and haphazard methods can give. But from the time when the weavers broke up the first power looms because they thought machinery would rob the workingman of his living, every new departure calculated to simplify industry, to make labor more effective and to increase the production of useful things, has encountered oppositon springing from the same type of ignorance. Somebody is required to move out of his accustomed path, somebody has to quicken his pace or learn new work, and there is always, and rightly, the possibility that somebody will get rich.

Nevertheless, the world has moved steadily forward in the past, and we cannot doubt that it will continue to do so. To associated bodies of business men like this the country looks naturally for counsel upon economic policies. In this time when there is so much of uncertainty, and yet so much of opportunity in the outlook, it will hear of your deliberations with more than ordinary interest. We want more of the influence of business men in public affairs, but I do not need to say to you that to increase that influence they must offer devoted service to the public interests.

Tire Fabric and Other Testing Requirements

By William D. Hartshorne

AT the invitation of Dr. Stratton, Director of the Bureau of Standards, there was held at the office of the Bureau, Jan 7, 1916, a conference between some sixty representatives of prominent institutions and industries, including both producers and consumers of fabrics. Sundry papers were read by Dr. Stratton, and several members of his staff in the textile section, as well

WILLIAM D. HARTSHORNE

as other papers from other departments of the government service, all with the idea of presenting data and seeking uniformity in methods of testing, not only tire fabrics, upon which the Bureau has been at work in conjunction with both the users and makers of tire fabrics for a long time, but also in relation to other materials, especially such as the government has use for, and where much ambiguity of results has arisen between methods of testing used by the maker and those used by the government. As all the members of Committee D-13, on Standard Tests and Specifications for Textile Materials, from the American Society for Testing Materials, were invited to be present, it afforded a good oportunity for holding another session for that committee the next morning, and to it were invited as many of those present at the conference as could make it convenient, and who desired to be with us and offer suggestions for our work. Eighteen persons outside of our membership availed themselves of the opportunity.

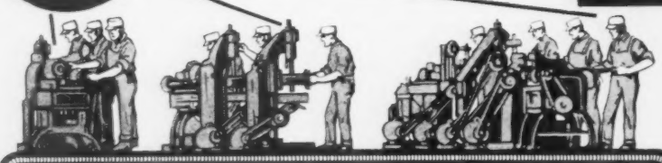
In undertaking to speak of the conference at the Bureau of Standards, since no definite action was taken, it seems desirable to include some notice of the work of this Committee D-13, which, besides the meeting on Jan 8, in Washington, has held another meeting at the offices of the United States Rubber Co., in New York, on March 17 and 18, at which nearly every member was present, as well as a good many other interested parties, guests of individual members, or of the United States Rubber Co.

The previous work of Committee D-13 has resulted in the adoption of tentative tests for automobile tire fabrics, (See Appendix I, for copy of these tests), which are published in the 1915 Year Book of the American Society for Testing Materials, and have been reprinted and published in various ways since the annual meeting of that society at Atlantic City in July, 1915. It is, of course, to be understood that these tentative tests were to be considered as subject to modification, as experience should dictate from their use during the year, and the object of our meetings since then has been to develop discussion and evidences of their successful application, or to show wherein they needed modification, not only as related to themselves, but as related to methods of testing of other kinds of fabrics.

Up to the time of our last meeting in New York, no agreement had been reached by the sub-committee on cement bagging, although it had been one of the two sub-committees first formed. Indeed, the initiative for the formation of Committee D-13 was from the users of cement bags, and the users of tire fabric. The former, however, were dealing with a much less expensive material than tire fabrics, and neither users nor makers had accumulated the class of data necessary to formulate methods of testing that would be commensurately economical and at the same time satisfactorily accurate, as between buyer and seller. It is hoped that this committee is now in possession of sufficient information, largely working through the Bureau of Standards, to get this class of material tentatively prescribed for.

Aside from the so-called Mullen test, which is fully recognized as limited in its application, the critical points under discussion for fabrics in general have been the size and method of preparing the piece, the strength of which was to be tested, the kind of jaws and type of machine to be used, the speed of the moving jaws, and the condition as to moisture content of the sample at the time of testing. A number of different kinds of jaws, and two materially different general methods of testing have been developed, one called the "strip method" and the other the "grab method." A number of the makers and users of materials were strongly in favor of the so-called grab method in testing all kinds of fabrics, but in the tentative tests adopted at Atlantic City, the strip method, having the largest number of advocates, including the Bureau of Standards, was the method

3 instead of 1



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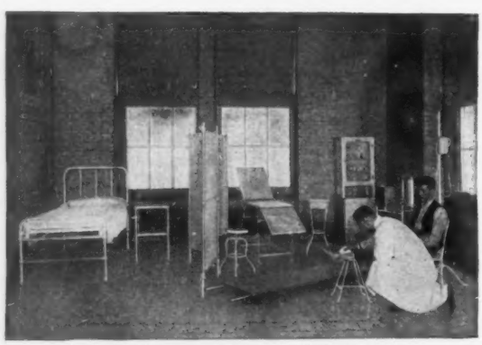

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tentatively adopted for automobile tire fabrics.

With the object of voicing the ideas of the advocates of the grab method, the West Boylston Manufacturing Co. was invited to exhibit at the Bureau of Standards Conference a series of moving picture reproductions of actual tests made in their laboratory by the two methods of testing.

This proved to be exceedingly interesting, and gave more of an insight into what takes place in the breaking of fabrics by the two methods than had previously been attempted, and to many it appeared quite convincing that the grab method served more the purpose (as had been claimed for it) of testing the strength of the material in its woven form, while the strip method was more directly related in its results to the strength of the yarn of which the fabric was made.

It remained, however, for E. Dean Walen, one of W. S. Lewis's assistants in the Textile Section of the Bureau of Standards, to present a diagrammatic and mathematical discussion of the two methods of testing, as related to the width of the jaws used and the number of threads clamped thereby. In the case of the so-called strip method of testing (that is, where all the threads not to be tested have been carefully ravelled out, but leaving a projecting fringe of, say, a quarter of an inch on each side), it was found that, in the tire fabric at least, those threads which had remained unbroken by the movement of the jaws up to the time when the machine ceased to register the strength of the break had, nevertheless, contributed an equal pro rata proportion of strength to the test, so that whether the strip tested covered five threads, ten threads, fifteen threads, or any other number up to the approximate width of the widest clamp used, the average result per thread was shown to be closely the same.

On the other hand, modifying the grab method as exhibited by the moving pictures, using one pair of jaws 2 inches wide and the other pair of varying widths for the narrow jaw, grasping the cloth at right angles to the threads being tested, it was shown that the supporting effect of the portion of the fabric clamped in the wider jaws formed a very different ratio for these varying widths of the narrower jaw. That is, where the 1-inch narrow jaw was used on the standard twenty-three by twenty-three per inch tire fabric there would be approximately just twenty-three threads clamped at one end, and forty-six threads clamped at the other, which gave a certain ratio of strength per thread clamped. When, however, a ¼-inch jaw, a ½-inch jaw, a ¾-inch jaw was used, and so on to the full width of 2 inches as held in the ordinarily wider pair of jaws, the average per thread was a widely varying amount, the ratio being much greater at the ¼-inch for say six threads, than at any other width tested, the minimum ratio being where both sets of jaws were supposed to be clamping the same number of threads.

While it might be possible to compare, in a broad way, the strip method of testing with this method of grab testing, it was important to find out, if possible, what width of jaws would afford the best comparative results, and whether a different width of piece clamped would not show, by the same or different method of grasping the fabric, a materially different set of data.

A further difficulty was developed when comparing the two methods of testing on different classes of fabrics. W. S. Lewis presented a series of tables showing the results of tests on a variety of fabrics by the strip method of testing as compared with the grab method of testing, which gave very non-concordant comparative results, and with which fact it seems probable to some observers that both the margin of width ungrasped and the method of grasping play an important part.

It was also found that on the heaviest class of cotton fabrics, that is, fabrics of the duck class, there seemed to be a much wider range of variation when using different widths of jaws on the strip test between the actual and apparent strength of the composing threads than had been shown to be the case in other fabrics. In view of these many considerations, at the meeting in New York, on March 17th, the subcommittee on duck materials reported in favor of a modified form of the grab test for this class. The chief difference was the tentative adoption of 1 inch as a basis for width and length in the jaws of the piece of material tested, with the further recommendation for this class of fabric that the speed of the moving jaws should be 20 inches instead of 12 inches per minute, as required in the tentative specifications for tire fabrics on the strip method of testing. A great deal of interesting discussion was brought out by this proposition, it having been claimed that the strip test was not applicable because of the practical difficulty of grasping all the threads (without cutting some of them) by the bite of the jaws, no matter how made, so that they would break with a sufficient degree of uniformity as to the number remaining unbroken, and the fact that those which did remain unbroken, owing to the much larger degree of crimp in the fabric, would not, in the three-inch length, and speed ordinarily used, have become stretched out far enough to give a pro rata degree of strength to the test, as happened to be the case in the tire fabric, and as is probably the case for the majority of lighter fabrics.

At the New York meeting a further extremely interesting exhibit was made by Henry L. Scott, of Providence, by a combination piece of apparatus designed by him and worked out in connection with the Bausch & Lomb Optical Co., of New York and Rochester, which projected on a screen the actual stress effects produced by breaking a series of samples of tire fabric, both in the bone dry state, wet state, and natural state, with different widths of jaws, and at different speeds, on the strip method and various forms of the grab method.

Samples of duck material in the natural state were also tested in the same way by the two methods for a comparison of effect, and served to crystallize the ideas of the committee around the central problems under consideration.

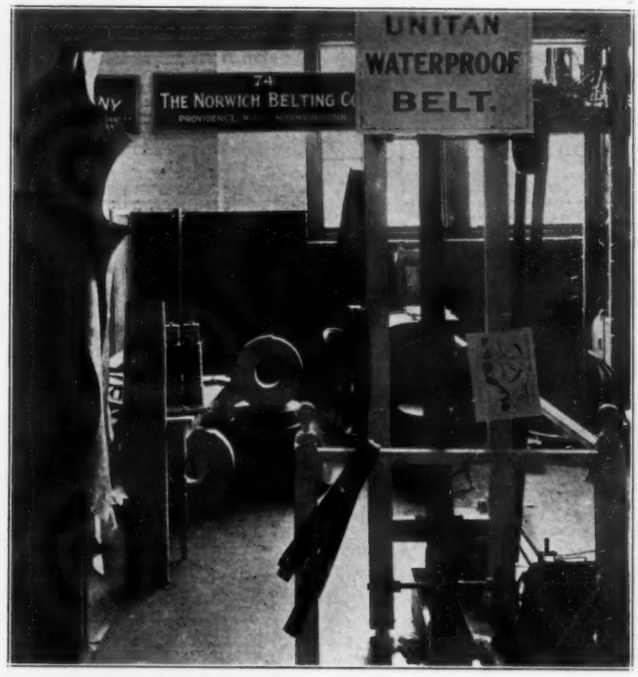
It will be noted that in the specification for tire fabric testing, the condition under which the test is made is that of the so-called bone dry or standard dry state. There are two reasons alleged by those advocating this method:

First. That the material must be in an approximately absolutely dry state at the time it is submitted to its rubbering treatment in the manufacture of the tire, and the results are then comparable with all the other tests required of the completed tire fabric structure.

Second. It had been assumed, and is still contended, that this state was the most uniform one readily obtainable at which to compare, not only tire fabrics, but any others to which it could be considered in any way applicable.

(*Continued on page* 135)

NORWICH BELTING



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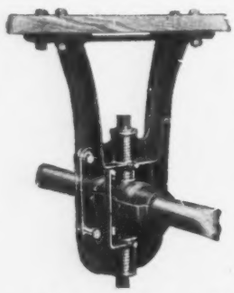

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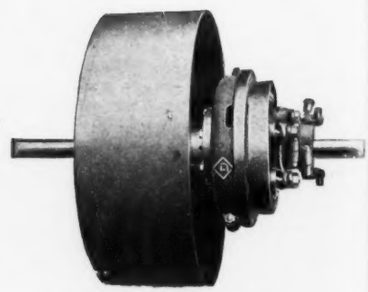
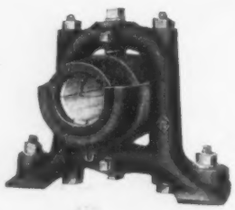
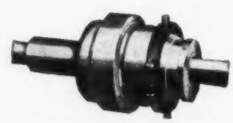


Dodge Split Friction Clutch Fitted with Dodge Split Iron Pulley.



Dodge Adjustable Pillow Blocks have open end frames to facilitate quick adjustment.



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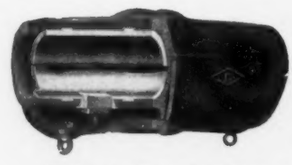


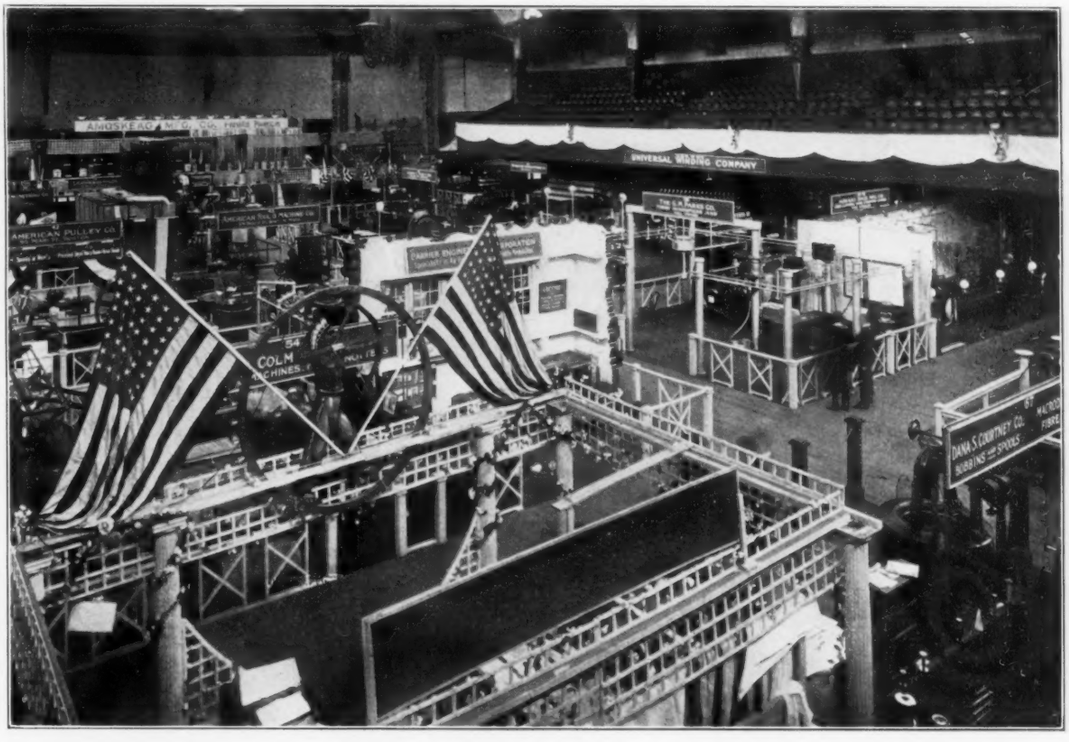
Dodge Capillary Self-Oiling Bearing, conveys only clean oil to the shaft by Capillary attraction.

Descriptions of Exhibits at Boston Textile Show

American Kron Scale Co., New York, who devised the expressive phrase "Load and look," to describe their products, exhibited their springless automatic dial scales, 100 per cent. efficient, especially adapted for use in textile mills. They showed a dormant platform scale, a popular type for platform service; a portable platform scale, which is readily movable from place to place, and is used to great advantage in a great many mills; and a special lap scale, which was shown for the first time. This scale is designed to be suspended from an overhead trolley, and runs back and forth in front of the finishing pickers, which permits the scale being pushed out of the way when not in use, and is always ready and convenient when wanted. This lap scale can be furnished in either 50 or 60 pound capacity, with one ounce graduations on 20 inch dial. The lap pan is 36 inches long and curved to hold a lap 19 inches in diameter, although the lap pan can be made to any other dimension. Ernst Ohnell, vice-president of the company, and J. Kirk Rowell, of the Louisville branch, were in attendance at the exhibit, which was in charge of District Manager M. E. Fitzgerald, 141 Milk Street, Boston, Mass.

American Laundry Machinery Co., Cincinnati, Ohio. Visitors were quick to appreciate the importance of the display of this company, and at one time it was necessary to station exhibition attendants at the space in order to keep the aisle open. The machines shown which created the most interest were the American automatic underwear press, 36 x 72 inches, No. 37 Universal press, a 48-inch American overdriven centrifugal extractor, 36 x 54 Acme washer used for fulling, scouring, bleaching, and dyeing hosiery and underwear particularly, and the Rose labeling machine, handled in connection with their lines. These machines were all equipped with their latest improved devices showing the results obtained along the lines of obtaining the best quality of work with largest production. Interesting literature was distributed, explaining the above machines and other specialties manufactured by the American Laundry Machinery Co. George L. Wenzell was in charge, and Manager W. S. Taylor was at the space during the week. Mr. Wenzell was assisted by a competent force from the various departments.

American Moistening Co., Boston. The first and original moistener in action was the unique feature of the exhibit devised by Treasurer Frank B. Comins of the American Moistening Co. In a space of 15 feet long by 7 feet high was shown a setting of water, spray and icebergs, with scenic lighting effects, to give added realism to the scene. At intervals of 30 seconds a whale, 6½ feet long, of the type used by the American Moistening Co. as a trademark, rose in the water and sprayed with characteristic motion from one of the jets used in their system of air moistening for mills, spouting intermittently, blowing three times in 4 seconds. Mr. Comins never does things by halves and can always be counted upon to provide a striking exhibit. In carrying out the analogy between the whale and modern air moistening, showing that "we can but copy what nature in her infinite work perfects," he engaged the services of the best scenic artists in Boston, who worked under his personal direction. The Comins portable electro psychrometer, described a few weeks ago on the machinery page of the Journal, was a new feature of the exhibit this year. This little instrument is 12 inches high and may be conveniently carried about the mill by the person designated to make observations or by the superintendent to check up readings. It is a self-contained unit, and its small size makes it possible to secure readings in spaces crowded with machinery. This instrument provides the means necessary in securing a perfect reading the same as required by the U. S. Government and generally secured by the sling psychrometer, but without requiring the space to operate in whirling. Manufacturers were impressed by its definite and positive action. The rest of the exhibit was similar to the exhibit of two years ago. A portable conditioning room formed a central feature of the display and there were various types of humidifiers manufactured by the American Moistening Co., also the automatic humidity control, etc. Everything was conveniently arranged for the inspection of manufacturers and others who were interested.



GENERAL VIEW OF DEPARTMENT A AT BOSTON TEXTILE SHOW

BOOTHS OF EXHIBITORS IN DEPARTMENT B AT MECHANICS HALL

The American Pulley Co., Boston. A number of their split steel pulleys and pressed steel reels and spools were the chief features of the display, which was one of significance in this section. An efficiency indicator, which indicates the amount of horse power required to keep a 24x6 pulley revolving at 450 r.p.m. was shown. It is claimed there is considerably less air resistance in "American" pulleys than in other steel pulleys which have arms that fan the air, instead of cutting it, and consequently a considerable saving of coal. Pulleys arranged in the shape of a cannon were a unique innovation. There was a 48x8 pulley on each side, and a line of pulleys on a shaft representing the body of the cannon; also a 72 x 12 pulley mounted on a shaft and driven by a piece of string. Samples of special two-bolt loom pulleys which can be very quickly applied to the shaft and are

DRAPER COMPANY

especially adapted for cotton looms received a large share of attention. C. G. Reynolds, New England sales manager, and P. J. Judd, in charge of reels and spools, were in attendance.

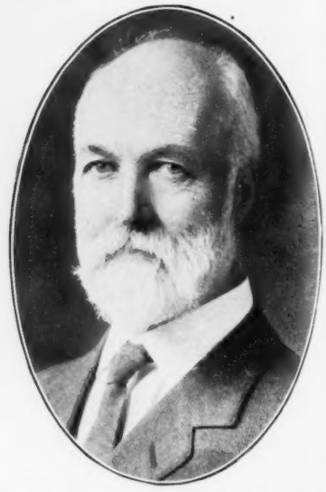
American Tool & Machine Co., Boston. Besides showing a wide range of Weston hydro-extractors, the American Tool & Machine Co. included in its exhibit a comprehensive display of hangers, pedestal boxes, etc. Weston hydro-extractors needed no introduction to the technical visitors, but users of this equipment do not often have the opportunity of seeing so many styles together. There was an 18-inch belt driven machine with an internal woven wire basket for special work, a 20-inch belt driven machine with tinned copper basket, a 26-inch belt driven machine with tinned copper basket, and a 24-inch belt driven machine with straight copper basket. These machines are self-balancing, easily adjusted by screwing the gland nut which compresses the rubbers in the gland. Simplicity of construction is a special feature making the cost of maintenance practically nothing as there are very few working parts to be replaced. Two styles of oil separators, Nos. 1 and 2, were also shown. Several styles of hangers and boxes were arranged for easy inspection, and included Boston drop hanger, hanger used with floor stand, Boston post hangers, American post hanger, rigid ring oiling pedestal box, ring oiling hanger box, American hangers, Giant hangers, etc.

American Warp Drawing Machine Co., Boston. A double beam warp drawing machine, which was shown for the first time, was working on a complicated 4-harness pattern draft. This machine will handle 6 cotton harnesses, the reed and three banks of drop wires, and in a general way is constructed along the lines of the standard types of warp drawing machines. The exhibit also included a style A lease picking machine and a style Q plain two harness warp drawing machine.

American Wringer Co., Woonsocket, R. I. Crude rubbers used in the manufacture of rubber covered rolls in which this company specializes, together with a specially constructed roll to demonstrate the method used in covering rolls with rubber was the feature of this exhibit. Other products made by this company such as rubber bleachery eyes, rubber pump valves, and rubber covered silk spinning rolls and rings were also shown. An interlocking sectional ring roll for wool scouring machines specially constructed for hard service was also featured. A special circular was distributed. The representatives in charge were Messrs. W. E. Brown, W. H. Theroux, V. Thorpe.

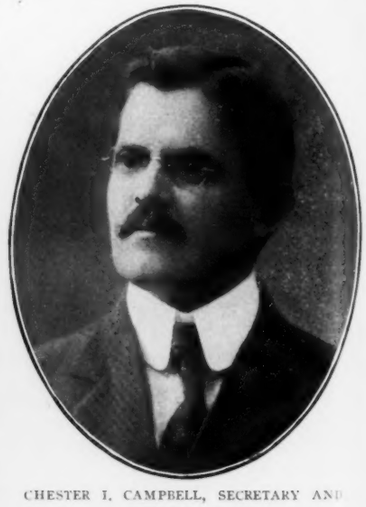
Amoskeag Manufacturing Co., Manchester, N. H. The largest textile mill in the country showed a representative line of Amoskeag products, including white and colored cotton and worsted dress goods. Samples of material were displayed from the raw stock to the finished products, showing the various stages of manufacturing.

Armstrong Sales Co., Providence, R. I. Display of metal filling boards for looms and metal roving boards for speeders.



FREDERICK H. BISHOP, PRESIDENT TEXTILE EXHIBITORS' ASS'N, INC.

Ashworth Bros., Inc., Fall River, Mass. A display well worth a visit was the exhibit of card clothing manufacturing shown by this concern. Card clothing for cotton and woolen mills was made during the week. A demonstration machine was shown in operation making tops for flat cards and a fillet machine making 120s wire fillet for cylinders and doffers. Henry Ashworth was in charge, assisted by W. H. Bigelow, C. B. Thomason, Jack W. Horner and Mr. Zaottr. A morocco bound memorandum book was given as a souvenir to their many friends.



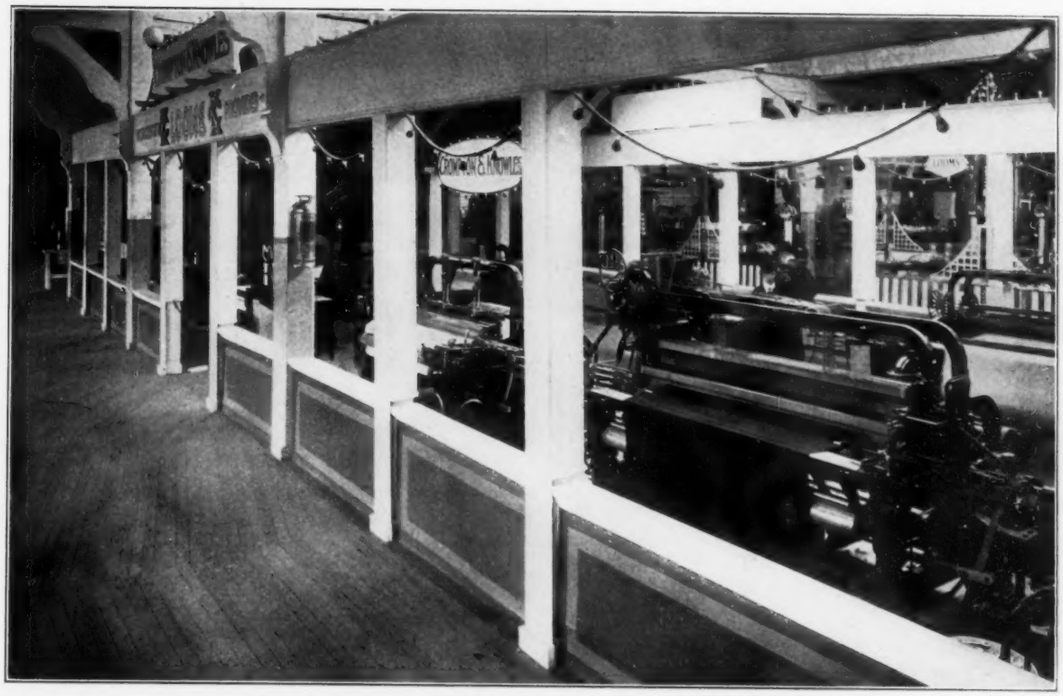
CHESTER I. CAMPBELL, SECRETARY AND TREASURER

Atherton Pin Grid Bar Co., Providence, R. I. Improved grids were shown for making cleaner yarns and less waste, and the exhibit was a center of interest among practical men present. These included their improved

WESTINGHOUSE ELECTRIC & MANUFACTURING CO.

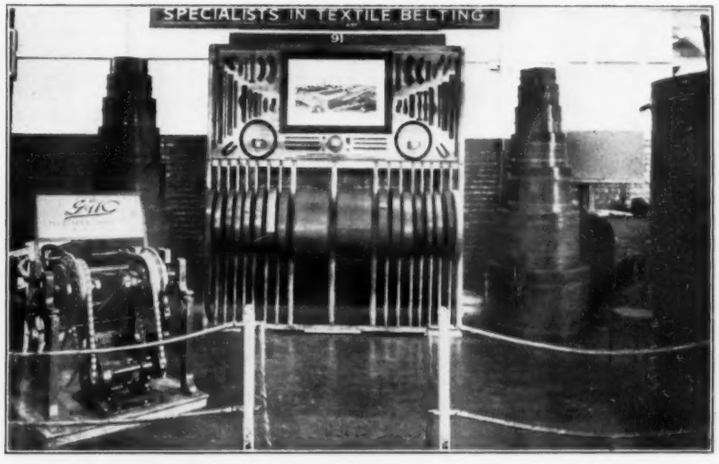
pin grid bars in adjustable brackets, also the same bar in stationary brackets. They also had on exhibition their new double-edge knife bar in adjustable brackets. L. D. Armstrong was in charge of the exhibit.

BARBER-COLMAN Co., Rockford, Ill. The wonderful mechanisms embodied in warp tying machines and the speed at which they operate was of as great interest as in previous years. The exhibit comprised the Model E and Model K warp tying machines, also hand knotters for spoolers. The Model E was equipped for handling two-beam warps and colored pattern warps, such as tickings, ginghams, etc. The particular Model E machine shown has been sold to the Dartmouth Manufacturing Corporation, New Bedford, Mass., a repeat order. The Model K machine is the portable or perambulator style of warp-tying machine used on jacquards, which has been sold to the Bates Manufacturing Co., Lewiston, Me. This also is a repeat order. This machine in particular has been greatly improved during the past year, so that both quality and quantity of production are better than has ever been formerly obtained. The loop knot has been eliminated on this machine, and they are now tying the same style of knot that has been always tied on the well-known Model E. R. E. McCausland, field manager, from the Rockford (Ill.) factory, was in charge of the exhibit. L. G. Goodrich, manager of the Boston office, and W. B. Anderson, superintendent of installations of the Boston office, were in attendance during the week.



CROMPTON & KNOWLES LOOM WORKS

GENERAL ELECTRIC COMPANY



GRATON & KNIGHT MFG. CO.

F. W. BARKLEY, Boston. Office appliances.

BARRETT CHANGER Co., Boston. Changer for pay rolls.

BIRCH BROS., SOMERVILLE MACHINE WORKS, Somerville, Mass., exhibited a scutcher, annular guide, conical opener, adjustable spiral rollers, and other machine in their line.

THE BORNE, SCRYMSER Co., Boston, had an interesting display of their textile and lubricating oils. Breton oils for wool were featured with samples of goods from widely separated States, showing the different sections of the country where these oils are in use. The increased trade and extension of territory for these goods are a demonstration that they have special merit which is being recognized, due not only to the inherent virtue of the Breton oils, but to the high standard maintained, the quality never having been allowed to deteriorate since first manufactured in 1874. For cotton and knit goods the full line of machinery, spindle, loom and knitting oils were shown. These needed no introduction to many of the manufacturers present during the week, as their quality service has brought them a

UNIVERSAL WINDING COMPANY

THE STAFFORD COMPANY

large and growing following. The exhibit was under the general supervision of F. W. Bradley, manager of the New England division. J. C. Burns and J. M. Palmer were in daily attendance, assisted by Messrs. Knight and Benedict of the New York and Philadelphia offices, respectively. James E. Kimball, of New York, the genial superintendent of sales, was present part of the week.

Boston Blacking Co., East Cambridge, Mass. Hat dyes and millinery glue.

H. W. Butterworth & Sons Co., Philadelphia. In a large space on the main aisle with ample room for demonstration purposes, the H. W. Butterworth & Sons Co., showed their motor-driven, straight automatic tentering machines equipped with patent automatic clamp chain and operating on print cloth. This machine was giving a demonstration of the indestructible 4-inch automatic clamp. Attached to the machine was a Kay & Foxwell patent guider, operated by air pressure, for guiding the cloth into the clamps automatically, doing away with any human agency at the feeding end of the machine; also a patent Simpson winder which automatically cuts off the goods while winding, thus doing away with the necessity of stopping the machine to change rolls. Harry W. Butterworth was in attendance part of the week, also A. C. Freeman, Thos. W. France and W. S. Rowley, who were kept busy greeting mill men and explaining the exhibit, besides discussing other equipment in this widely known concern's line of dyeing, bleaching and finishing machinery.

Cameron Machine Co., Brooklyn, N. Y. This concern exhibited in a well-located space in the balcony. The display consisted of various fabrics in the form of rolls and coils, as produced by the Cameron principle of slitting and rewinding. Strips ranged from the sheerest gauze to heavy duck used for belting, showing the wide range of work performed by this system. The men in charge were Frank C. Risselt, sales manager, and W. B. Wilshusen, advertising manager.

Campbell Textile Machinery Co., Auburn, R. I. One of the latest cards showing the refinements that have been made since taking over the Potter & Johnston textile machinery business was featured by the Campbell Textile Machinery Co., manufacturers of and specialists in opening, picking and carding machinery. As will be remembered by Journal readers, Leon W. Campbell, widely known as a successful manufacturer and sales manager of textile machinery, organized the Campbell Textile Machinery Co. early in January, and this year marks the first exhibit of the new company, with its able, aggressive organization, headed by Leon W. Campbell, president; F. L. Hewitt, treasurer, and J. H. Mayes, Charlotte, southern agent. The new plant at Auburn began manufacturing several weeks ago with a minimum interruption to production and with a large amount of new machinery providing every requirement of a modern machine shop, capable of turning out a large production of the highest grade cotton preparatory machinery, as demonstrated by the card exhibited. The space was visited by a large number of manufacturers who showed unusual interest in the display.

Carrier Engineering Corporation, New York and Boston. This exhibition represented a central system of air conditioning as they would install it in a mill. It consisted of an air conditioning apparatus in operation, showing the method of conditioning and controlling the air. Also, the way in which the air is distributed to the various compartments of the mill and the control of the humidity and temperature conditions in each compartment. In detail, the apparatus consisted of a humidifier with centrifugal pump and direct connected motor and dew point control, with fresh and return air dampers, a fan driven by a motor, air distributing ducts, heating coils, automatic humidity control. The exhibition was complete in every detail, showing the method of maintaining the conditions, and also the ease by which they can be changed from one condition to another, illustrating the manner in which buildings can easily be warmed or cooled as the conditions require. The system was explained by engineers of the company to many interested visitors. E. T. Lyle, the New England representative, was in charge. J. I. Lyle, treasurer and general manager, was on hand part of the week.

William Carter Co., Needham Heights and Springfield, Mass. Display of finished underwear garments in all grades for men, women, and children.

Cling-Surface Co., Buffalo, N. Y. An important power demonstration was made in the space of this company. It consisted of a power-driven demonstrating machine showing the efficiency of belts with Cling-Surface treatment over untreated belts by means of similar belts from a single source of power and arranged to receive similar load, with indicators mounted so that the difference in the transmission efficiency and delivery of power was plainly evident. Charles F. Chase, Eastern manager, was in charge, assisted by George H. Moon.

Clipper Belt Lacer Co., Grand Rapids, Mich. This exhibit consisted of their "Clipper" belt lacer and "Clipper" belt hook. The operation of the lacer is familiar to most technical men, giving a neat joint of great strength. The hooks are made from a special

1168-119
SACO LOWELL SHOPS
WORKS AT BIDDEFORD - NEWTON UPPER FALLS - LOWELL
EXECUTIVE OFFICES, 77 FRANKLIN ST.
SKF BALL BEARING CO.

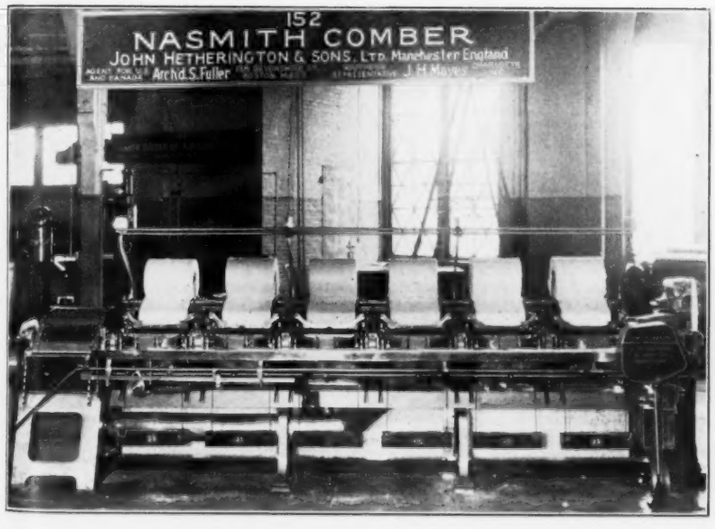
SACO-LOWELL SHOPS

steel wire of an analysis that combines great tensile strength with rigidity and wearing qualities capable of standing a strain of over 400 pounds per inch on single belts, and an even greater strain on double belts. Frank G. Kall, New England representative, was in charge of the exhibit.

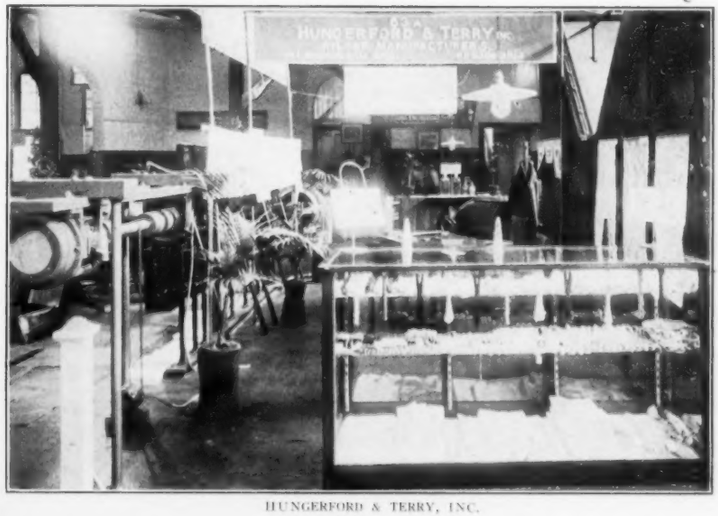
DANA S. COURTNEY CO., Chicopee, Mass. Bobbins and spools.

STUART W. CRAMER, Charlotte, N. C. In a well located space on one of the main aisles the Cramer System of Air Conditioning made a striking exhibit. There was shown in operation under automatic control one of each of the several types of air moistening machines in this system, consisting of copper fan air conditioners, copper spray humidifiers, fan ejector humidifier, atomizer humidifier and central station systems. A special feature of the control of the central station is the refinement of having the sprays connected in relays to produce a gradual change as conditions demand. There were three types of automatic humidity and temperature regulators on exhibition and in operation, each of which has been developed to meet different requirements. All operate on the wet and dry bulb psychrometric principle with the elimination of the rags, wicks and pot of water. They also had on exhibition several types of Cramer improved pneumatic diaphragm valves, the diaphragms of which are constructed without the use of rubber, bolts, rivets or solder, making them practically indestructible. The exhibit was in charge of C. D. Park, with H. B. Rogers and R. C. Miller in attendance. Stuart W. Cramer and W. B. Hodge from the home office took an active part in explaining the various features of their products dur-

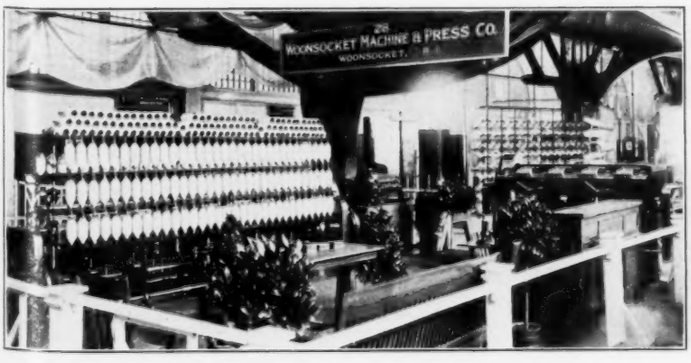
SCOTT & WILLIAMS, INC.



JOHN HETHERINGTON & SONS, LTD.



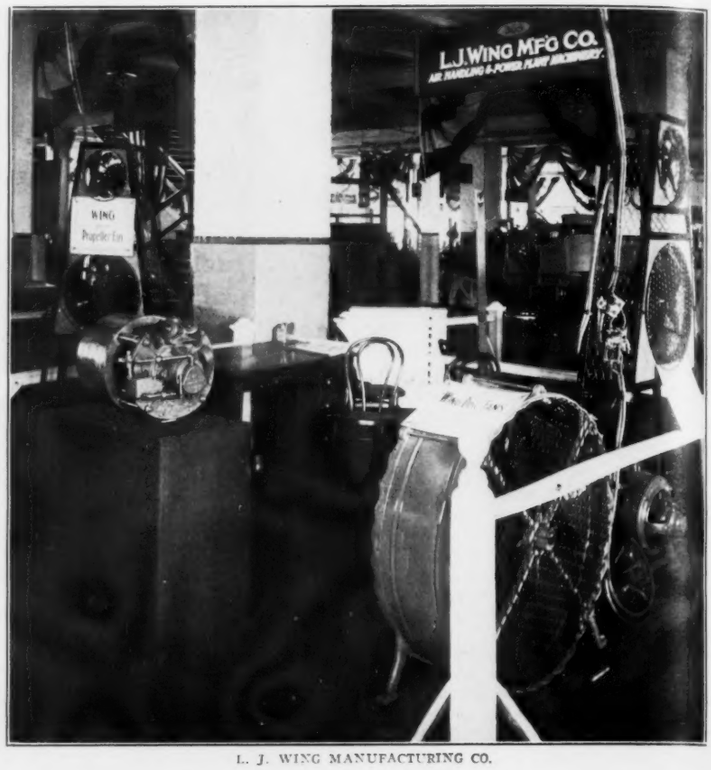
HUNGERFORD & TERRY, INC.



WOONSOCKET MACHINE & PRESS CO.

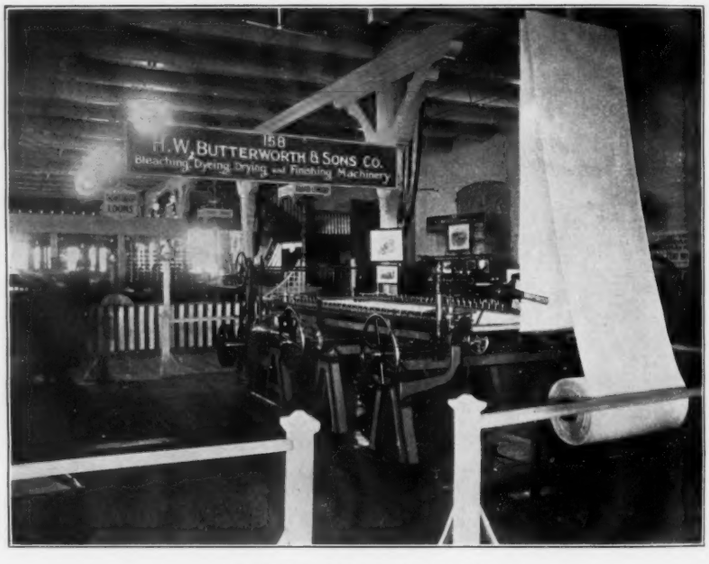
WHITINSVILLE SPINNING RING CO.

CARRIER ENGINEERING CORPORATION

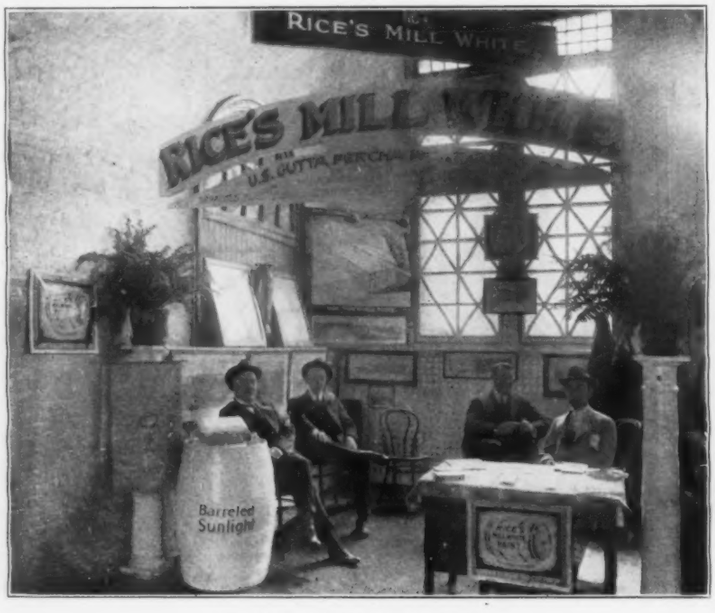


L. J. WING MANUFACTURING CO.

FOSTER MACHINE COMPANY



H. W. BUTTERWORTH & SONS CO.

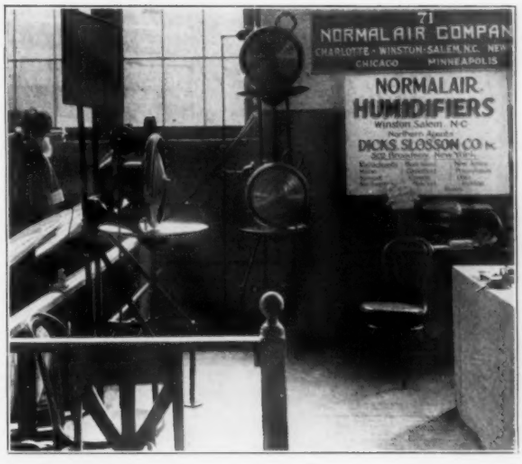


U. S. GUTTA PERCHA PAINT CO.

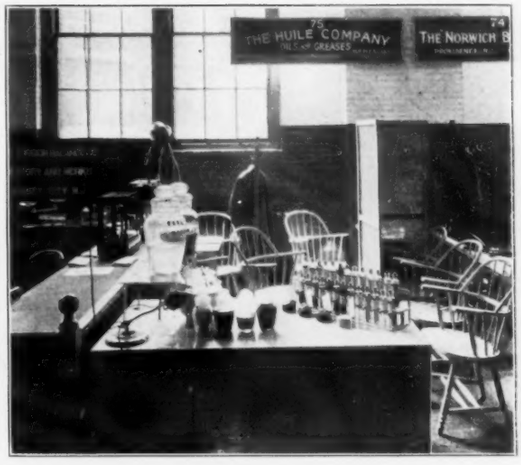
CAMPBELL TEXTILE MACHINERY CO.

ing several days of the week and in greeting both northern and southern friends and customers.

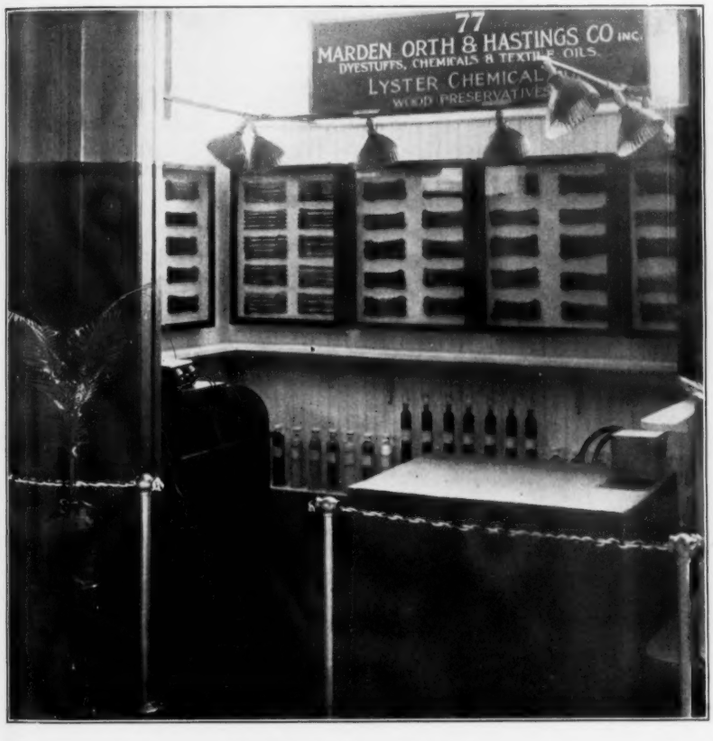
CROMPTON & KNOWLES LOOM WORKS, Worcester, Mass., located directly under the dome, occupied a space 24 x 66 feet, in an open roof structure, finished in French gray and gold. A massive molded frieze supported by fluted pilasters, surrounded the exhibit. The arches were bordered by cable and lamps in colors, while each side had a pediment containing the name of the firm capped by a gilded eagle and flags. The display was lighted by festoons of electric lights and studded illuminated balls overhead hung on brass chains. The machinery exhibit this year consisted entirely of automatic looms. They showed the automatic gingham loom in two types, a two-color and a six-color. There are thousands of these looms in successful operation, and they are built in two, four, and six-color capacity. A Terry towel loom was equipped with a four-color magazine, three cells of which were used for the ground or body of towel, thus allowing for a large number of reserve bobbins, and the fourth cell for the border. A cotton blanket loom was running with four colors with a jacquard controlling the pattern, weaving a figured blanket, and presenting to manufacturers a practical illustration of the wide range of work for which the automatic loom is adapted. The duck loom shown differs from the other looms exhibited, in that the shuttle is automatically changed instead of the bobbins, upon the near exhaustion of the filling, and this change is made without the loss of production, as no picks are lost in making the transfer. For the worsted and woolen trade, two looms to illustrate the adaptability of the automatic feature to these branches were shown, including a 2 x 1 box, 25 harness, intermediate worsted loom, equipped with the well-known Draper magazine, making an ideal combination where but one color is used, when it is desired to mix the filling; and a 4 x 1 box, 20 harness, heavy worsted loom, having a vertical magazine to hold four colors, producing



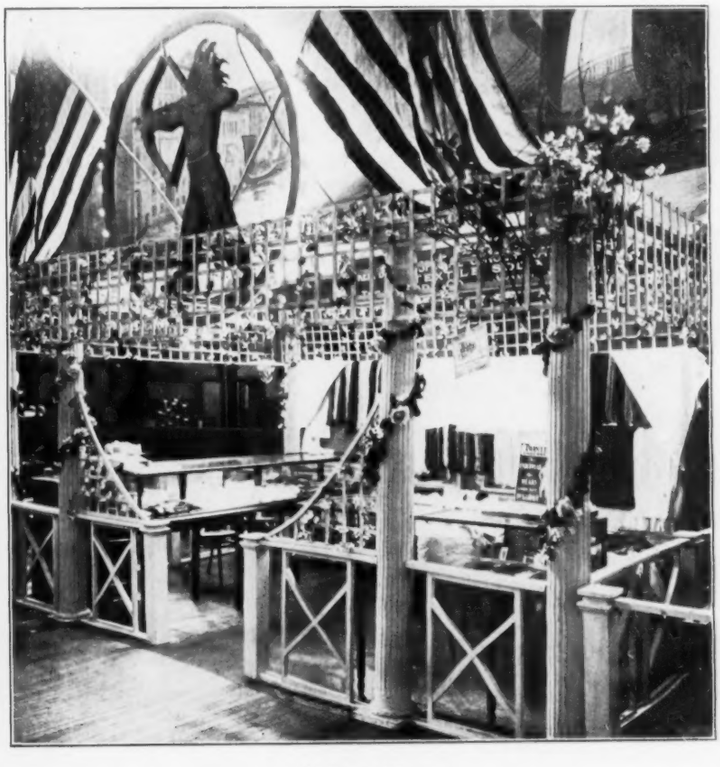
NORMALAIR COMPANY



THE HUILE COMPANY



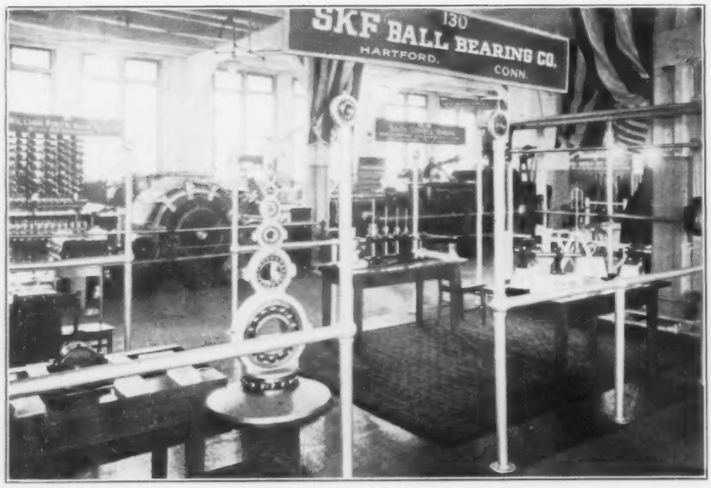
MARDEN, ORTH & HASTINGS CO., INC.



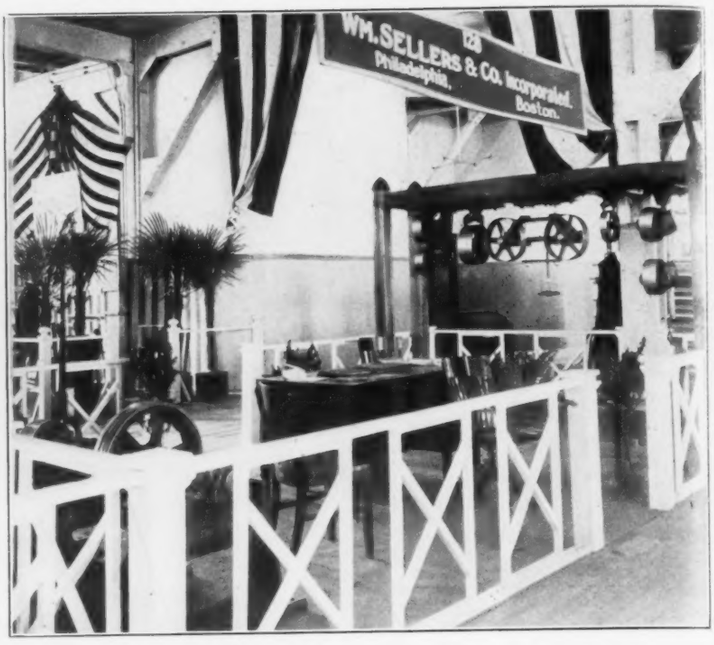
THE J. B. FORD CO.

THE TORSION BALANCE COMPANY

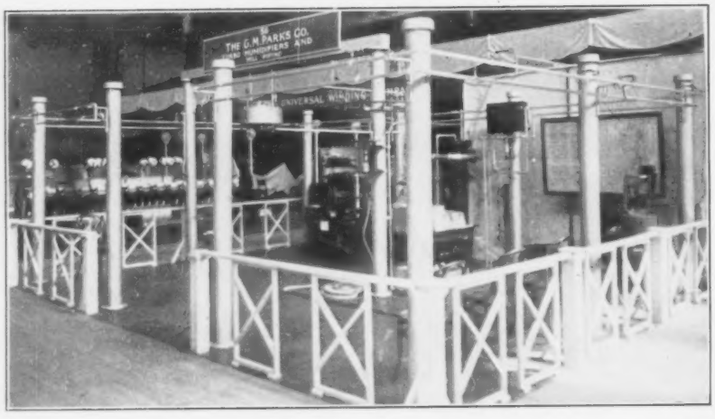
AUTOMATIC SHAFT COUPLING CO.



S. K. F. BALL BEARING CO.

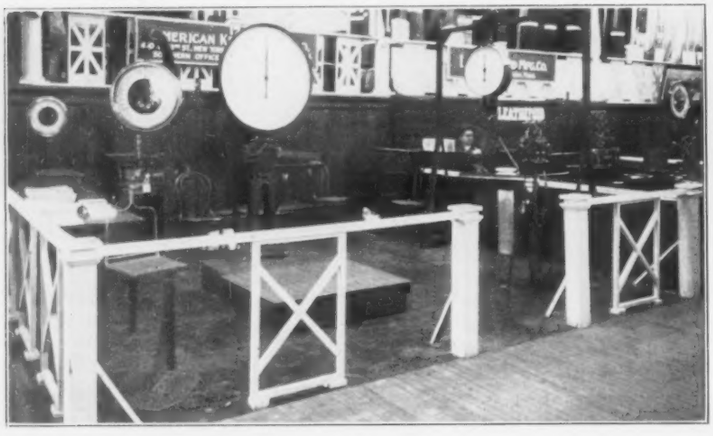


WILLIAM SELLERS & CO., INC.

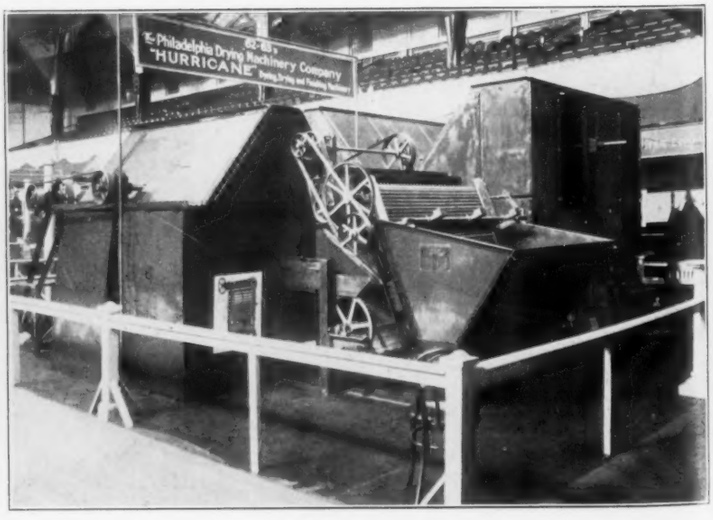


THE G. M. PARKS COMPANY

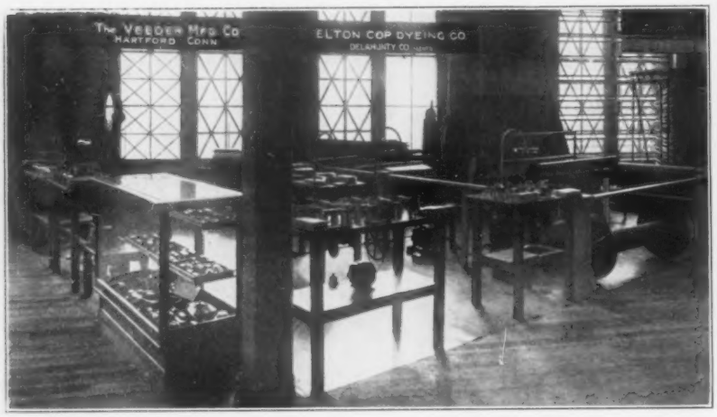
STEEL HEDDLE MANUFACTURING COMPANY



AMERICAN KRON SCALE CO.



THE PHILADELPHIA DRYING MACHINERY CO., INC.



THE VEEDER MANUFACTURING CO. THE ELTON COP DYEING CO

AMERICAN TOOL & MACHINE CO.

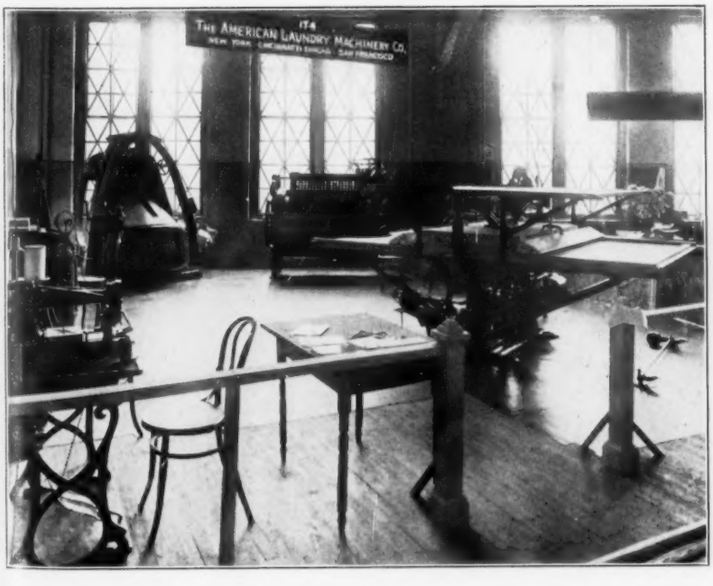
THE LUNKENHEIMER COMPANY

high-grade suiting. Both of these looms were equipped with warp stop motion. All looms in their exhibit were driven by independent motor drive, with motors especially adapted for this class of work. No striking developments have been made in loom design or construction since the last show, and the improvements shown were largely refinements in details. Charles F. Hutchins was in charge, and was assisted by a large staff from the company's works and offices.

CURTIS & MARBLE MACHINE CO., Worcester, Mass. A motor driven double cutter woolen shear with list-saving rests in operation on woolen cloth, showing improvements which have been made on these machines in the last few years, was exhibited and was of interest to woolen and worsted mill men. A collection of photographs of their large line of finishing machinery for cotton goods, woolen, worsted and felt goods, carpets, rugs, plushes, velvets, curduroys, etc., was prominently displayed and attracted the attention of cotton and other manufacturers. A unique little circular was distributed showing copy of an advertisement run by Albert Curtis from 1838 to 1863 and giving the present lines manufactured by the concern. The exhibit was in personal charge of Edwin

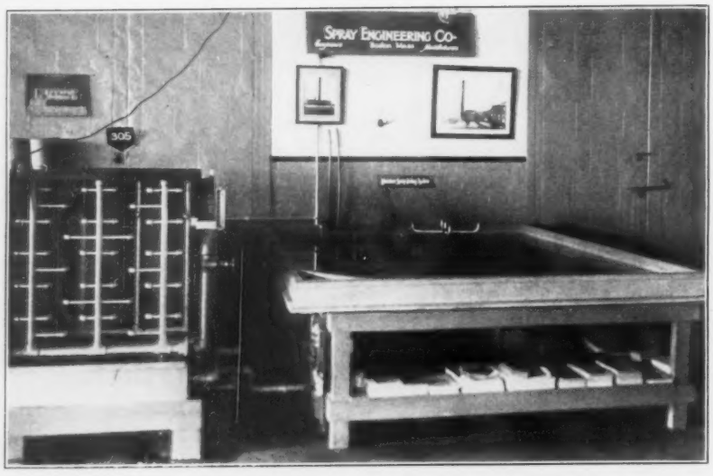
EASTMAN MACHINE CO.

RHODE ISLAND HUMIDIFIER & VENTILATING CO.

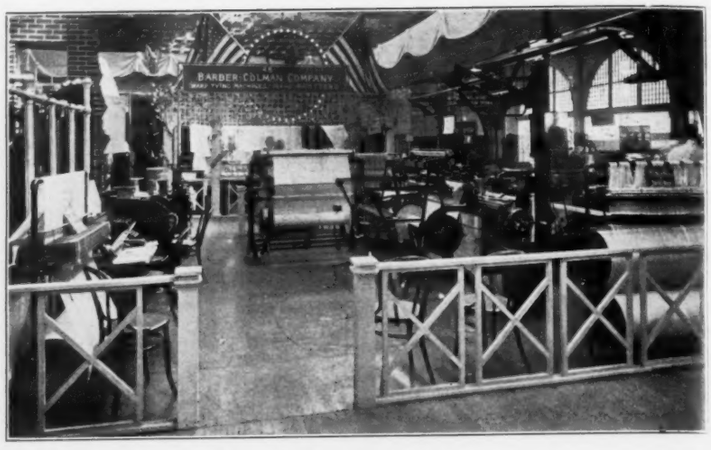


AMERICAN LAUNDRY MACHINE CO.

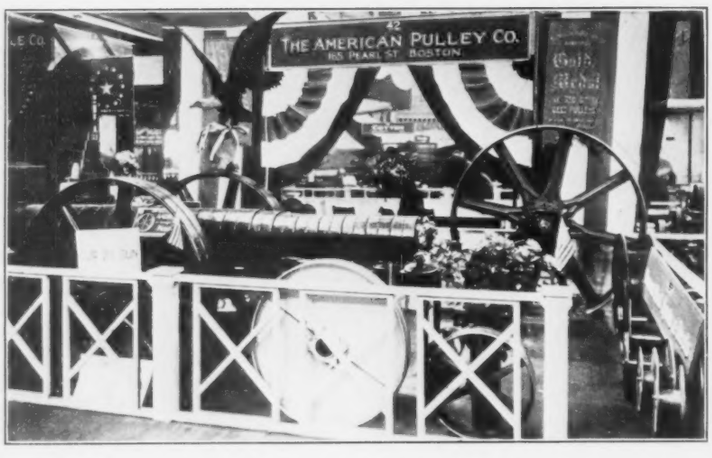
AMERICAN WRINGER COMPANY



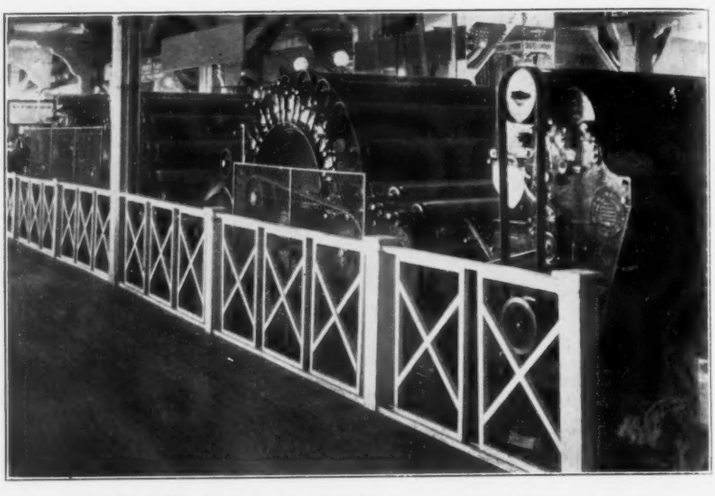
SPRAY ENGINEERING COMPANY



BARBER-COLMAN COMPANY



THE AMERICAN PULLEY COMPANY



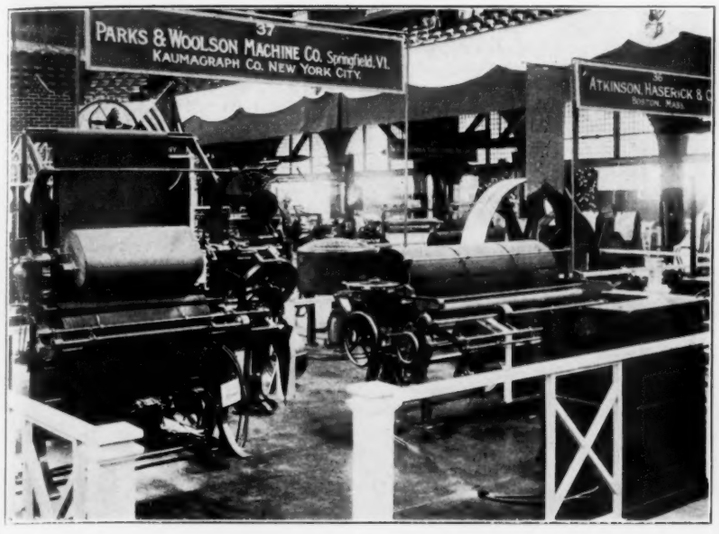
GEORGE S. HARWOOD & SON IN CONNECTION WITH DAVIS & FURBER MACHINE CO.

SCREW-MACHINE PRODUCTS CORPORATION

THE PERMUTIT COMPANY

TEXTILE WORLD JOURNAL

DODGE SALES & ENGINEERING CO.



PARKS & WOOLSON MACHINE CO.

TRANSMISSION BALL BEARING CO.

H. Marble, assisted by the New York representative, Fred C. Bryant, and others from the Worcester office.

Geo. A. Cutter, Taunton, Mass., exhibited a twelve cell drier, arranged in two stacks.

Danvers State Hospital, Hawthorne, Mass. Textile equipment and products from this institution occupied a space in the balcony and some remarkable pieces of work were shown. A hand loom built in late 1700, formerly owned by Ross Turner, the artist, added to the interest.

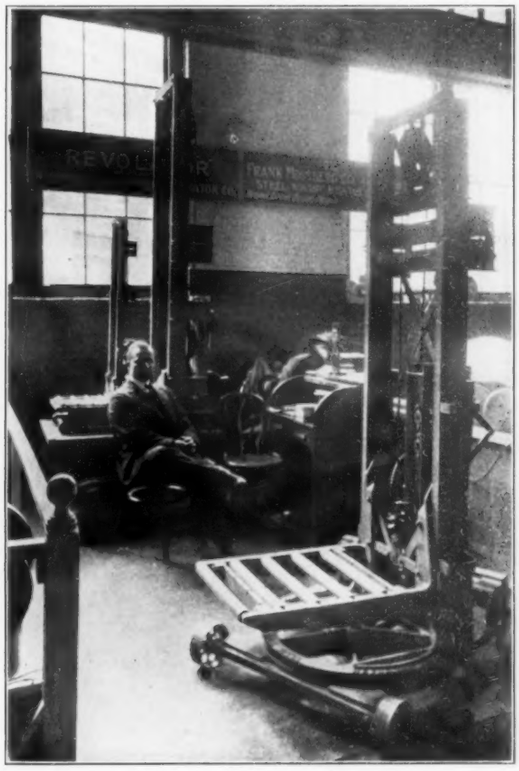
Davis & Furber Machine Co., No. Andover, Mass. The exhibit included the Scholfield card. Nearby was an impressive modern 3-card iron cylinder set of the latest construction; near the mule was an old-fashioned one-thread spinning wheel. The cards were equipped with the latest feeders manufactured by George S. Harwood & Son, Boston.

Day Adjustable Bearing Co., Belton, S. C. Adjustable rocker shaft bearings for looms. These bearings have been put on looms in scores of mills in the North and South, and in addition to proving their wearing qualities, have been very profitable in reducing thin places and seconds and serving to reduce break outs. The company is also manufacturing a counting device which is being introduced to textile mills. Representatives, L. W. Stansell, T. H. Lamar were present.

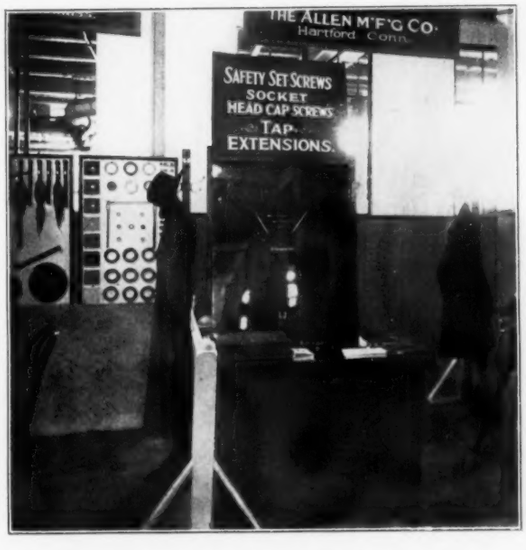
Delahunty Dyeing Machine Co., Pittston, Pa., showed the exhibit of the Elton Cop Dyeing Co., Bury, England, for which they are the agents in the United States. This consisted of dyed cotton warp on patent beams or cylinders, also cloth made from warp dyed on these cylinders. The colors used were indigo, indanthrene and sulphur colors. They also had a Draper warping machine with a patent density controlling apparatus which controls the density of the warp as it is being wound on the beam or dyeing cylinder before dyeing. Some warps for different colors have to be wound harder than others and this machine has been successful in giving results which insure uniform dyeing all the way through the warp. C. P. Delahunty was at the exhibition all week, with John Brandwood, managing director of the Elton Cop Dyeing Co., who came over from England last week, also Thomas Brandwood, a brother of John Brandwood, and James McIntyre, of Bury, England.

Draper Co., Hopedale, Mass. A large and striking exhibit was made by the Draper Co. in their usual space that was admirably arranged to display the well-

N. Y. & N. J. LUBRICANT CO.



N. Y. REVOLVING PORTABLE ELEVATOR CO.



THE ALLEN MANUFACTURING CO.

McLEOD & HENRY COMPANY

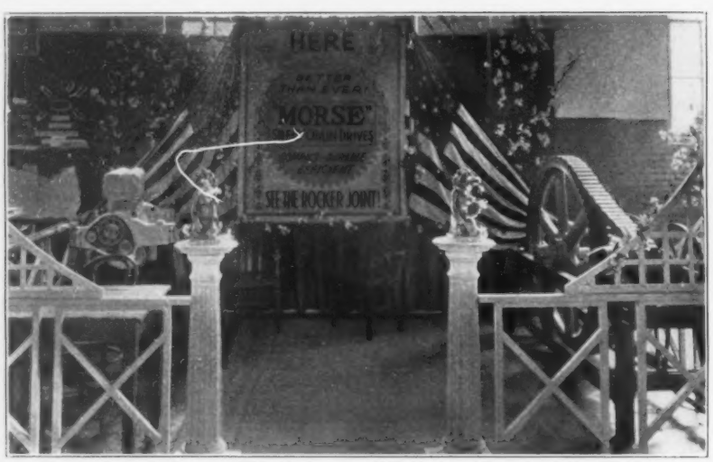
known Northrop Automatic looms. The railings were in black and white vertical panelling out of which rose 10 electroliers, 15 feet high, bearing the name of the company on each of their four sides. At regular intervals the railing was divided by square molded posts, having flame shaped electric lights encircled by gilded wreaths. Pierced shields in the Renaissance style to accord with the style of the tall sign standards were suspended above the space bearing the words, "Northrop Looms" on either side. The feature of the exhibit consisted of eight Northrop Looms, all of regular construction, but equipped with many of the latest improved devices. These looms included the following models: A K Model, 36-inch loom, on 20 harness dobby dress goods, using cop filling. A P Model, 36-inch loom, on 4 harness drill, with a new battery for extra large bobbins. An E Model, 30-inch loom, on striped gingham, with the new Straw feeler, which was quickly appreciated by mill men. An M Model, 40-inch loom, on fine lawns, using cop filling. An L Model, 90-inch broad sheeting loom, weaving Pequot sheetings. An E Model, 36-inch loom on twill goods, with 8 harnesses, operated by the new harness motion. An E Model, 40-inch loom, on a plain two-harness weave, the standard model for sheetings and prints. An E Model, 28-inch loom on Terry towels, which was shown for the first time. All of these looms, as well as all of the other machinery in the exhibit, were driven by individual motors. The gears on all the looms were cut gears, a recent improvement, and lock washers were used throughout. Five different models of warpers and one balling machine were shown, one of the warpers being a new model to take a 32-inch beam head. A new model twister with tape-driven spindles was rigged up to make novelty nub yarns, and a new model tape driven spooler was shown equipped with the McColl spooler guide. From time to time demonstrations of yarn testing were given on a new single thread yarn testing machine, which automatically makes 80 breaks and gives a permanent record on a diagram. Table displays showed samples of the different kinds of rings, spindles, bobbins, shuttles, temples, spooler guides, drop wires, and slasher combs, regular and Morrill style. The exhibit, as usual, was in charge of Wallace I. Stimpson, agent of the company; B. H. Bristow Draper, assistant agent, and other members of the selling department. President Frank J. Dutcher visited the show during the week.

THE DODGE SALES & ENGINEERING CO., Boston, distributors of the products of the Dodge Mfg. Co., Mishawaka, Ind., showed a complete line of power transmission material, including iron center wood rim pulley for high speeds, self-oiling hangers, safety friction clutches, veneer mill trucks, etc. A feature of the exhibit was a demonstrating unit showing the different types of self-oiling bearings. On another counter shaft were different types of pulleys with solid and split clutches. The high speed, iron center, wood rim pulley, which made the record test of 5½ miles a minute rim speed, was a center of interest. A photograph stand contained striking pictures of installations of Dodge material. The exhibit was in charge of W. B. Hosford, Mishawaka, Ind., vice-president of the Dodge Mfg. Co.

D. T. DUDLEY & SON CO., Wilkinsonville, Mass. Line of hand threading and automatic loom shuttles equipped with Vi-se-co porcelain shuttle eyes.

ALFRED SUTER

GORDON-HAY COMPANY, INC.



MORSE CHAIN CO.

NATIONAL SCALE COMPANY

LOWELL TEXTILE SCHOOL

JONES & HARDY, INC.

EASTMAN MACHINE CO., Buffalo, N. Y., showed four different styles of their new model cloth cutting machine, which is adapted for all varieties of fabrics as well as knit goods. It is a labor-saving device, whose merits have been thoroughly demonstrated, and the new model shows refinement of construction and convenience. L. Black and A. A. Johnson were in charge.

ELWELL-PARKER ELECTRIC CO., Cleveland, Ohio, manufacturers of electric industrial trucks, found it impossible to get through the embargo in time with a truck for exhibition purposes. J. W. Emery, the district sales agent, had his regular demonstrators on hand early, however, and gave a very practical demonstration of their capacity and ease and safety of control in moving other exhibitors into position. The conditions made a trying test, necessitating driving through narrow spaces negotiating sharp turns without backing, etc., but the trucks came through with flying colors. A special circular was distributed, which gave information of various types and capacities of electric storage battery industrial trucks for textile mills and warehouses. R. M. Truner, James F. Meikle, and J. W. Emery, the latter the district sales agent for the Elwell-Parker Electric Co., were all in attendance at the exhibition.

EMMONS LOOM HARNESS CO., Lawrence, Mass., exhibited a wide variety of their products for ranges of goods from fine silks to heavy ducks. Their display included samples of reeds and harnesses, jacquard mails, mending eyes, heddles and twine and the fine finish of the various products created much favorable comment from the practical men who visited their space. Representatives were in attendance who explained the superior workmanship of the Emmons product.

FAIRBANKS CO., Boston. A highly developed machine for quick weighing service was demonstrated by representatives of this company. They exhibited the Fairbanks automatic full capacity rotating direct reading dial indicator, having a scale platform, 47x37 inches, dial capacity 2000x1 pound, graduations ¼ inch apart, tare bar 200x1 pound. A load is placed upon the platform and immediately its correct weight is shown on a plainly graduated dial. The only limit to the rate at which weighings could be made was the rate at which loads could be handled to and from the platform. Special scales for the textile trade in large variety were explained and a descriptive catalog was distributed. The exhibit was in charge of Harold Green, assisted by Messrs. Chamberlain, Wright, Kay, Allen, O'Brien, Beatty and Abbott.

S. A. FELTON & SON CO., Nashua, N. H. A line of textile mill brushes.

WILLIAM FIRTH, Boston, importer and manufacturer of textile appliances and machinery, displayed some new ideas in labor-saving and cost-reducing apparatus on the Huntington Ave. side of the building. The Firth improved broomless floor sweeper, a machine for sweeping mill floors, saving brooms and sweepers' wages, attracted a great deal of attention in handling waste in a clean and efficient manner. The dustless card stripper which eliminates card stripping dust by air suction and has been adopted in many mills, giving cleaner and more satisfactory card rooms, was of interest to manufacturers. A demonstration of the patent can tramway was given, showing how it saves time and labor in handling roving cans. This is a simple device that not only delivers the cans where desired, but increases their life. The new type of Crighton opener, with automatic feeder motor driven, was favorably commented on by mill men who inspected the design and construction. This machinery is built by Asa Lees & Co., Ltd., Oldham, Eng., for whose products Wm. Firth is agent in the United States and Canada. Joseph J. Smith, who recently returned from a month's trip through the South, was present during the week.

J. B. FORD CO., Wyandotte, Mich. The excellent results obtained by the use of their products were shown by an exhibit consisting of all classes of products manufactured by textile mills, including lace, cotton yarns, silk, silk hosiery, cotton hosiery, rugs, bedspreads, absorbent cotton, wool goods, combed wools, in fact practically a full line of products manufactured by the textile trade. Features of special interest were new shades in ladies' hosiery, also cotton which was prepared for the manufacture of gun cotton. F. S. Klebart, field manager of the textile department, was in charge.

FOSTER MACHINE CO., Westfield, Mass. The interchangeable features and the adaptability of this company's winding machines was strikingly demonstrated by the variety of winding done at the show. Many processes were demonstrated without using the entire machine for each process. This in itself proved of great interest to manufacturers. The Foster system applied to the following processes was shown: Model 30 cone winder winding knitting yarn from cops and bobbins, cotton tube winding, worsted cheese winding for jack spooling and examining spoolers and cotton and worsted, 2, 3 and 4 end doubling. The simplicity of construction and accurate work with its insurance of better ply yarn was a notable feature of the doubling winder. For the better qualities of ordinary ply yarns it is becoming more and more the custom to double the yarn on one of these machines before putting up the package in the creel of the twister, thus equalizing the tension and preventing corkscrew

TOLHURST MACHINE WORKS

TOLEDO SCALE COMPANY

AMERICAN MOISTENING COMPANY

THE FAIRBANKS COMPANY

yarns by delivering the yarn under the most favorable conditions. With this method it is also possible to do away largely with bunch knots, reduce waste and creeling. The Model 30 winder was of particular interest to the knitting mill men present. Perhaps the feature of the Foster Company's exhibit was their new Precise winding machine, equipped for cones and tubes. This machine has been developed for all lengths of traverse, both open and close winding on the precise winding principle and has several features that are a distinct departure from other winding systems. As at the exhibition two years ago, E. T. Fowler, treasurer and manager of the company, J. O. McKean and T. E. Connor, were present during the week and explained the latest designs and

HENRY L. SCOTT & CO.

improvements in cone winding, tube winding, doubling yarn for twisting, electrical wire covering, etc.

FRANKLIN PROCESS CO., Providence, R. I. The Franklin process of yarn dyeing was represented by a new model 6-pound sample machine and a 100-pound machine with standing bath so that dye liquors may be saved and used over again. This standing bath consists of a tank of capacity larger than the total capacity of the dyeing machine proper. The tank is elevated above the level of the machine and the liquor is pumped up into the standing bath by the same pump that operates the dyeing machines, and the dye liquors when desired for re-use are run in by gravity into the expansion tank. The standing bath is equipped with a suitable tell-tale so that one may know at all times the amount of liquor contained. The little 6-pound sample machine, which was shown for the first time, has 3 holders, each carrying four 3-inch packages of yarn or two 6-inch packages. It requires a floor space only 4 feet by 1 foot 8-inches and is driven by ½ h.p. The steam connection is ⅜ inch; water connection, ½ inch; and drain size, 1¼ inch. These machines showed the compactness of their construction and the ease with which they can be operated. There are no complicated parts and by the shifting of one valve the course of the liquor is changed from outside into inside out. They also had on exhibition sample packages showing the various kinds of work done in the job dyehouse of the Franklin Process Co., also to demonstrate just what the machines will do on practically any kind, count or ply of yarn. A handsome catalogue was distributed giving information of the Franklin process, views of the machines and job dyehouse, Franklin patented springs and tubes, table of information, cutting machines, winder and Franklin circulation system for boiling kiers. Messrs. Urquhart and E. T. Harrall were in charge of the exhibit and improved the opportunity to greet many of their old friends.

GENERAL ELECTRIC CO., Boston. In their own exhibition space they had a representative assortment of motors and motor-controlling devices, such as are used in the textile industry, including two new features comprising a horizontal section of a new standard motor for belting, running at 400 r.p.m., and showing simplicity and ruggedness of construction; large ventilating ducts; well insulated primary winding; solidity of rotor construction; oil reservoirs of large capacity; ample shaft size and bearing linings. They also showed a new semi-enclosed motor for textile service which gives practically all the advantages of the enclosed motor with the size and approximate cost of the open type. A desirable type of motor for use in capacities where extra cost and increased size of totally-enclosed motor would be prohibitive. Indirectly the principal part of their exhibit was found in the exhibition spaces of about fifty machinery manufacturers who were using General Electric apparatus for operating their exhibits. These included H. M. Butterworth & Sons Co., Campbell Textile Machinery Co., Draper Co., Crompton & Knowles Loom Works, Klauder-Weldon Dyeing Machine Co., G. M. Parks Co., Stafford Co., Scott & Williams, Inc., American Moistening Co., and many others. In many cases special textile mill motors were applied as they are found in up-to-date practice in textile mills. S. B. Paine, manager of the mill power department, Boston, and L. W. Shugg, of the advertising department at Schenectady, N. Y., were in charge of the exhibit.

GENERAL FIRE EXTINGUISHER CO., Providence, R. I. Grinnell Automatic Sprinkler Systems were featured and daily demonstrations were given of the operation in putting out a fire within a little glass cabinet. The exhibit also included the Rector Gas Heating System, Nivling Size Circulating System, power piping, bends, barrels and fittings; also the Hale Gas Mixer.

GENERAL SUPPLY CO., Danielson, Conn. Bobbin cleaning machine.

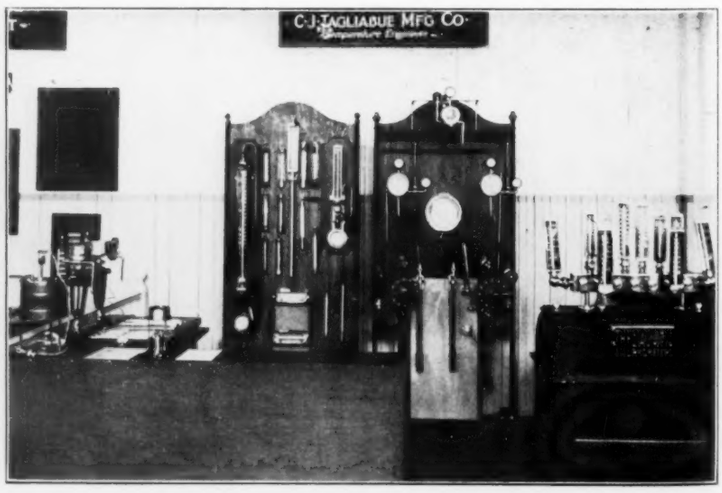
JOHN H. GILES DYEING MACHINE CO., Taunton, Mass. A standard model "B" worsted skein dyeing machine equipped with a G. E. multi-speed motor spe-

CLIPPER BELT LACER CO.

cially wound to meet dye house conditions of steam and moisture was shown.

GORDON-HAY CO., INC., Boston. Manufacturers were quick to realize the importance of the demonstration of the new Gordon double licker-in card attachment for the feed end of cards and B. Gordon, Jr. and R. K. Hay, who were on hand, were kept busy explaining the device. This is a cleaning mechanism which removes solid dirt from the cotton without removing any fiber as shown by the attachment in operation on a Saco-Lowell card. One of the important feature brought out was the preparation of the cotton being delivered to the card, the air treatment thor-

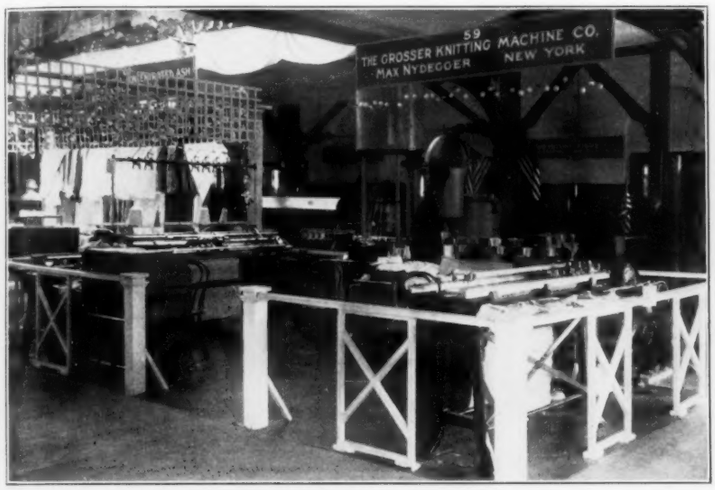
LEATHEROID MANUFACTURING CO.



C. J. TAGLIABUE MANUFACTURING CO.

roughly loosening the fibers and any trash contained in the loose sheet of cotton. The main space was located in Section A, and another exhibit of the device was shown in Department B.

Graton & Knight Mfg. Co., Worcester, Mass., showed part of their exhibit for which they were awarded the gold medal at the Panama-Pacific Exposition. This included a large 82-inch 3 ply oak tanned leather belt, used for main engine drive and two pyramids 10 feet high of oak tanned double belts in various widths, from 6 to 24 inches. Other features were an exhibition rack showing special textile belts, including 12-inch motor drive belts, 2-inch single loom belts, 2-inch single and light double cone belts, 3-inch spinning frame



THE GROSSER KNITTING MACHINE CO.

belts; textile leather specialties were prominently displayed in a large panel, the center of which was the latest picture of the Graton & Knight works, showing the new power house and other enlargements which doubled the productive capacity. Various types of V belting for transmission purposes created interest, including Spartan block type and G. & K., M. L., and F. M. L. type V belt. A demonstrating multiple drive unit for looms showed the operation of two looms by one motor, using one-inch Spartan block type V belts. This unit was developed to meet the requirements for a positive drive with a flexible link between the constant speed driving element and the driven machine, and it was explained, has advantages in economical first cost, ease of adjustment and installation, floor space, etc. R. P. Champney, chief engineer; C. O. Streeter, assistant engineer and R. C. Moore, advertising manager, were in regular attendance, and a salesman from the Boston office was also on hand.

Grosser Knitting Machine Co., New York. One of the most interesting exhibits at the show was shown by the Grosser Co., under the personal supervision of Max Nydegger. The new domestic-built links machine, with a new type of sinker or jack, permitting the elimination of a number of troublesome parts on the carriage was shown in operation and demonstrated to the trade. The old reliable Grosser double lock power machine with all automatic functions in lock changing, striping, racking, etc., produced sweater coats along most economical lines and showed the manufacturer how he could reduce his shop cost and increase his production without adding to his force. A brushing machine of the McCreary-Cohoes type, gave the soft nap to knit fabrics and demonstrated how necessary it is for every knit goods factory to be equipped with one of these machines in order to be able to turn out the most attractive novelties in knit goods for the sporting line. The new pompon machine was kept in operation and poms turned out in a large variety with various color combinations and this without any cutting work.

Hampden Paint & Chemical Co., Springfield, Mass. Panels showing different finishes obtained by Hampden mill white.

George S. Harwood & Son, Boston. The exhibit of this concern consisted of modern feeder equipment on the latest sets of 60 x 60 inch cards exhibited by the Davis & Furber Machine Co. These cards were equipped with the latest Bramwell first breaker feed with the Geb compensator and all recent improvements. The double finisher was equipped with the recenty greatly improved Apperly feed with Bates style patent geared traveler; a device recently developed and patented by George S. Harwood & Son, which they believe to be the best intermediate feed ever offered to the trade. This Apperly feed is also equipped with the patent Geb controller.

John Hetherington & Sons, Ltd., Boston. Of particular interest to many manufacturers was the exhibit of the Nasmith comber by A. S. Fuller, agent.

THOS. LEYLAND & CO.

The machine shown was the latest pattern Nasmith comber running on 1 3-16 staple American cotton, 90 nips a minute, taking out 14 per cent. of waste and producing 900 pounds of combed sliver a week. It was fitted with the aspirator with ball bearing fan, also with metallic detaching and drawing rolls and lap stop motions. This exhibit was the first time this comber has been shown with metallic detaching rolls and lap stop motion, and it is also interesting to note that this comber is the only one on which it is possible to use metallic detaching rolls. The space was well chosen for this interesting display, being centrally located between two of the main aisles. From the Boston office Mr. Fuller and Herbert Harrison were in attendance and during the week J. H. Mayes Charlotte, the Southern agent, was at the space.

Hinds & Coon, Boston. Mill supplies. This concern acts as Boston distributors for the Clipper belt lacer system.

Holyoke Machine Co., Worcester, Mass. Friction clutches, water wheels and governors.

Hopedale Manufacturing Co., Milford, Mass. A loom about forty years old was shown, which by the application of this company's attachments had been completely remodeled into a modern automatic loom for all practical purposes, with filling changer, warp stop motion, thread cutter, and mis-threading device, showing how ordinary good plain looms can be brought up-to-date and made profitable to operate. The new standard automatic loom, which bears the name of the Hopedale Mfg. Co., was exhibited with the features of construction essential for the present developed type of automatic looms. The battery is of simple design and the loom equipped with many special devices including the Nor-Dray filling feeler, new thread cutter, which cuts close to the cloth and makes a clean selvage, filling fork on battery side to stop loom in case a mis-pick occurs and puller-out for removing the filling end of the exhautive bobbin from the shed. There was also an excellent table display of automatic loom shuttles, temples, drop wires, and heddles. C. H. Draper, treasurer, Jonas Northrop, president and Frank E. Norcross, were in charge.

L. T. Houghton, Worcester, Mass.

HOPEDALE MANUFACTURING CO.

THE C. J. ROOT CO.

A small spinning frame was shown in operation, equipped with several improvements including metal thread boards that have become a standard for spinning frames. A new method of weighting was in operation and samples of cloth were shown made from same roving with same treatment and stock, excepting the weighting of top rolls. This cloth spoke for itself. Results of repeated tests to determine the break of the yarn were given and the new method of weighting average 5 pounds stronger. There was also a new metal creel rack; means for quickly removing weight from all the rolls; means for changing size of rings, one adjustment to spindle required; a non-binding lever screw; a one-piece saddle; also a tension device for spooling and winding yarn that gives requisite tension without destroying elasticity. L. T. Houghton and Archie Dufrale were in charge.

Howard Bros. Manufacturing Co., Worcester, Mass. occupied a large space on one of the central aisles in the main hall and provided a unique display demonstrating the manufacture of card clothing. Two card setting machines were shown at work making clothing for main cylinders and doffers for cotton cards. These were improved machines running about 415 teeth a minute and turning out a high grade of product which experience has proved in some of the best mills in the North and South compares favorably with the best imported goods. As a background for the exhibit a reproduction on canvas of the card setting department of their works was shown. It is interesting to note that this is the fiftieth anniversary of the company. The exhibit was in charge of Herbert Midgley, president and general manager, assisted by Everett S. Eddy, Eastern representative, Joseph A. Bolger, Western representative, E. M. Terryberry, Southern cotton representative, and a force of other assistants.

Huile Co., Lynn, Mass., principally featured Bradford wool oil, making an emulsion for woolen and shoddy manufacture. It was explained that this product is 100 per cent. emulsifiable uniform, reliable, lubricates the fiber thoroughly, does not gum the cards and scours out easily, besides having advantages in cost. They also displayed a line of oils and greases for textile mills and manufacturing plants in general. An emulsion made 4½ years ago which was shown in the 1912 Textile Show was exhibited to bring out the features that it stands up indefinitely and does not become offensive in odor. A. Lincoln Bowman, general manager; W. H. Butler, Thomas J. West, Urban W. Frank and J. J. Kenny, explained the products to mill men.

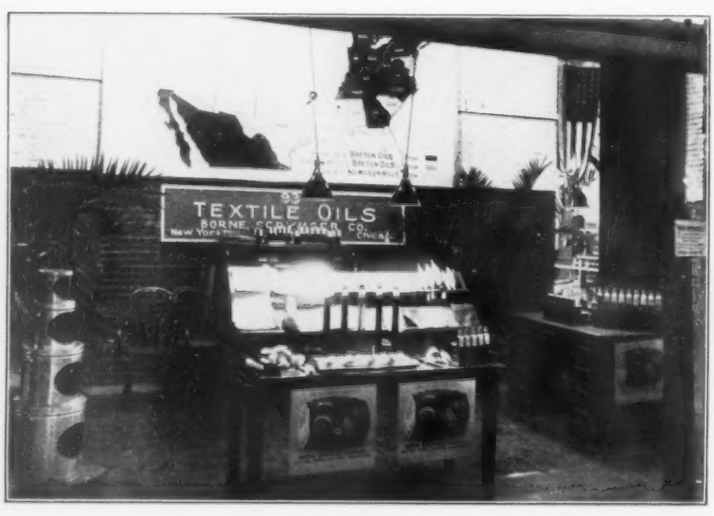
Hungerford & Terry, Inc., Philadelphia, devoted their space largely as a reception room for their many friends in the industry. Comfortable furnishings were provided and the restful decorations added to the effect. The exhibit consisted chiefly of yarns and fabrics of different manufacturers, dyed, bleached and otherwise processed in water from their filters, showing delicate shades obtained with water taken in many cases from highly polluted streams. In addition there were shown samples of water from the South and from the Blackstone River, before and after filtration, making a very effective display of the results accomplished by the Hungerford filter. It is of interest to note that a second installation is being made at the Nyanza Mills, Woonsocket, in connection with their recent enlargement, also at the Uxbridge Worsted Mill, at Woonsocket, formerly the Glenark Mill, and at the plant of the Halliwell Co., located in the old D. Goff & Co.'s dyehouse at Pawtucket. A contract has also recently been closed with a large carpet mill, where the installation will soon be started. The exhibit was in charge of Frank I. Rounds, Eastern representative. Churchill Hungerford and Benjamin F. Soffe of the regular staff, were also present during the week.

Hussong Dyeing Machine Co., Groveville, N. J. They exhibited in miniature size, with circulating fluid, a single propeller machine, such as is used in the dyeing and bleaching of slubbing, wool and worsted yarns, plain and mercerized cotton yarns, organzine and tram silk, tapes, braids, hemp, jute and linen skeins. The operation of loading, unloading, elevating and lowering the batch into the machine, reversing the course of the fluid and action of the circulating fluid upon the stock in treatment were all demonstrated. The machine was provided with a transparency that the eye might rest upon the stock while immersed, with the machine in operation. In addition they exhibited a cage in which stocks such as loose wool, noils, rags and shoddy are stripped, chromed, dyed, washed and after-treated with one handling of the stock. A display of stocks treated in the machine was also shown. J. Harry Thompson was in charge of the exhibit and was assisted by W. J. McElmoyl and A. E. Pratley.

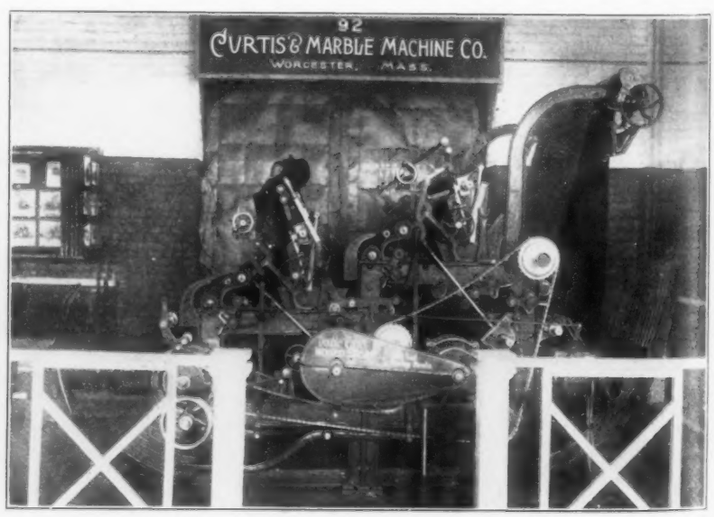
R. G. Jennings Yarn Cleaning Machine Co., Elmira, N. Y. To show the adaptability of the Jennings yarn clean-

ISAAC WINKLER & BRO.

FRANKLIN PROCESS CO.



BORNE, SCRYMSER COMPANY



CURTIS & MARBLE MACHINE CO.

takes up the slack on the loose side of the band on right or left twist. An automatic roll cleaner which automatically cleans the rolls and spaces between them, thereby insuring clean yarn, was also of interest to the trade. Messrs. Hardy and Jones were in attendance.

KAUMAGRAPH Co., New York, exhibited in connection with the Parks & Woolson Machine Co., of Springfield, Vt., with whom they are affiliated in the trademarking of textiles by the Kaumagraph process. One of the Parks & Woolson-Kaumagraph attachments as applied to a measuring machine was demonstrated, also applications of Kaumagraph transfers by hand.

KEYSTONE FIBRE Co., Yorklyn, Del. Roving cans, boxes, baskets, trucks, etc.

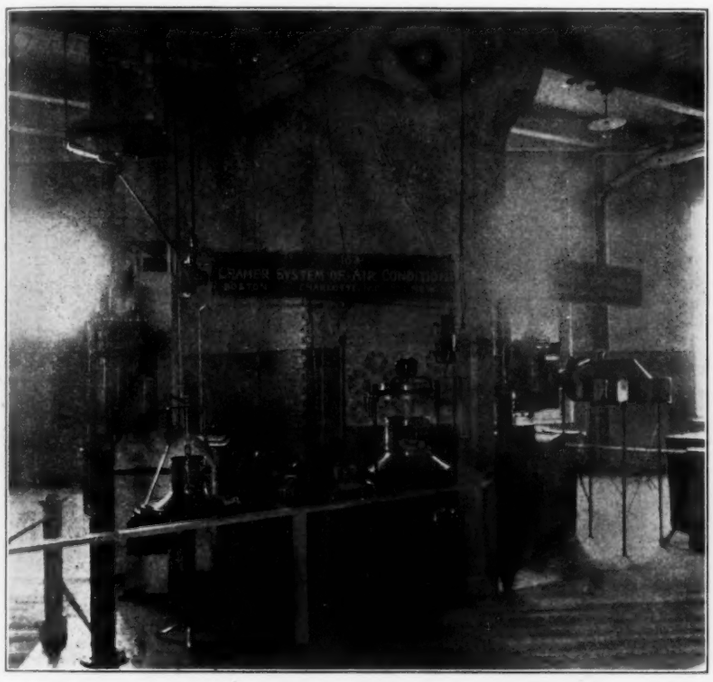
KLAUDER-WELDON DYEING MACHINE Co., Yardley, Pa. A central space in cated space in the main hall. These included seamless roving cans, warehouse car, factory boxes, round taper baskets, combination doffing car, and barrels. Perhaps the feature of the exhibit was the No. 1 seamless Leatheroid roving cans, the top of which are made by rolling the edge of the can two and one-half times on to the outside surface, making a very smooth finish and allowing the can to be conveniently handled, besides presenting a smooth surface on which it is impossible for material to catch. Samples of sections of different articles were displayed showing how the various products are put together. A line not shown heretofore to the textile trade, but which is found in wide use among concerns in the textile industry, consisted of cases for not only carrying tools, machine parts, etc., bleach house, which has a flatter surface than common, on which to place the cloth while passing through the machine. This sewing machine also cuts the edge and an attachment is provided for printing the tar mark.

LITCHFIELD SHUTTLE Co., Southbridge, Mass. Shuttles and shuttle irons featured this exhibit which presented some of the latest styles manufactured by this company.

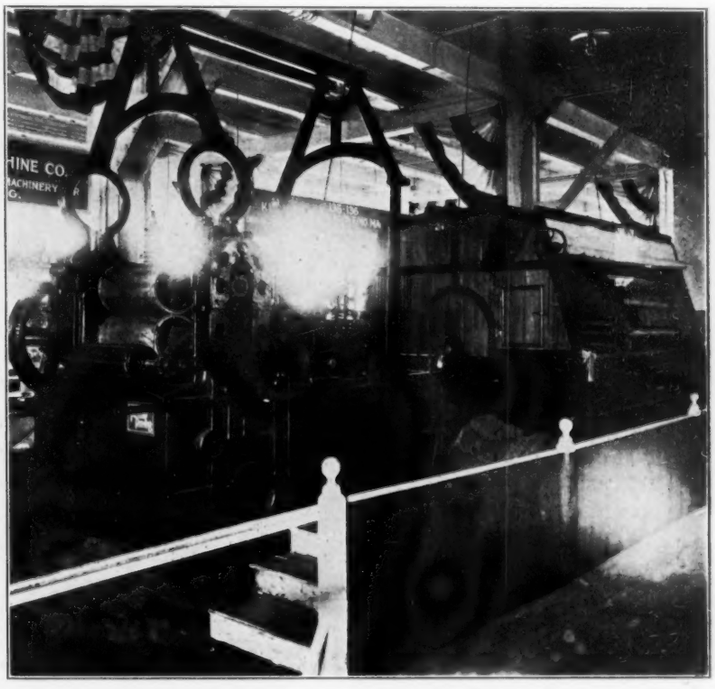
H. F. LIVERMORE Co., Boston, Mass., had a general display of loom repair parts for all the standard makes of looms, besides a general supply line.

CHARLES LOWINSON, New York. This exhibit showed Lowinson's thread counting micrometer, besides other textile instruments.

LOWELL TEXTILE SCHOOL, Lowell, Mass. An exhibit was arranged, showone progressive concern is accomplishing along the line of easing the dyestuff difficulty. A very complete line of dyed yarn skeins in cotton, wool and silk were mounted in cases and illustrated the range of shades from pale lemon yellow through the browns, tans, olives, greens, greys, blues and up to the blacks, which are obtainable from American-made dyewood extracts, such as quercitron, fustic, sumac, osage orange, cutch, logwood and hematine. Marden, Orth & Hastings Co. are specializing on these products, and they either own, control or are closely interested in five factories for the manufacture of these products and others. H. G. McKerrow states that they expect shortly to have upwards of 100 barrels a day of logwood and hematine to dispose of. In addition to these dyed yarn skeins there



STUART W. CRAMER



KLAUDER-WELDON DYEING MACHINE CO.

one of the main halls was occupied by the Klauder-Weldon Dyeing Machine Co. showing one of their standard 40-stick double all bronze worsted skein dyeing machines. This machine was motor driven. It is a 250 to 400 pound machine, with all the latest improvements. There are only five "spiral" springs on the machine; all the movable parts have been eliminated; the reel shaft is bronze covered; auto drive, three speeds ahead, one reverse speed; gearing all enclosed; and equipped with the Tagliabus control for regulating a temperature of the dye bath. In addition a section of one of their recently developed wool and worsted skein scouring machines was shown in continuous operation driven by motor. This machine has advantages along the lines of saving floor space, while giving the production of old type machines; is equipped with extra squeeze rolls to give a better scour; and all the working parts can be lifted out of the tank as a unit in case of necessity for repairing. The exhibit was in charge of Vice-President Henry Higgs and Assistant Superintendent Joseph Wilson. General Manager W. S. Duell was observed at the space during the week.

W. T. LANE & BRO., Poughkeepsie, N. Y. Canvas mill baskets.

LEATHEROID MANUFACTURING Co., Boston. An extensive line of Leatheroid products was shown in a well-lobut cases for carrying samples of goods and raw materials. A new small size can for conveniently transporting empty bobbins, etc., created much interest. J. W. Cass, Boston, was in charge of the exhibit.

THOMAS LEYLAND & Co., Readville, Mass. A line of cloth finishing machinery was shown including an expander, scutcher and portable piece end sewing machine. The Mycock regulating cloth expander on exhibit is a patented machine composed of three or five bars on which revolve by the action of the cloth, corrugated clutches or rolls. The bars are curved, and as the cloth passes through the expander, each particle of the cloth across its width is carried from the center outward. It is adapted for dry cans starch mangles, water mangles, calenders and mercerizing machines. The scutcher was the usual prevailing type, but was provided with special bearings and it was evident that for solidity of construction, freedom from defect and wearing power this machine is unsurpassed. The sewing machine exhibited was of the portable type, a special feature of which is a chain similar to a bicycle chain which carries the pins on which the cloth impinges, as it passes through the machine. They also explained to the trade a so-called whaleback sewing machine for sewing the ends of the cloth before passing through the singer and into the ing some of the work of the various departments of the school. Perhaps the feature of greatest interest was a series of interesting samples, showing the steps taken in the production of certain of the artificial dyestuffs by the chemistry and dyeing department. A commanding feature was the stand in the center on which was draped fabrics representing the work of the students not only in the weaving and finishing departments, but in all the others as well. The cotton yarn department arranged a series of exhibits illustrating the relative amounts of cotton and waste in a pound of strict low middling cotton. The woolen and worsted department illustrated the different steps in the manufacture of a worsted yarn, and the design department showed framed designs illustrating the wide scope of this branch. The engineering department was represented by drawings and other material illustrating the engineering problems that form a part of the course, as well as an exhibit of the products of the machine shop.

LYON MFG. Co., Fitchburg, Mass. Power bobbin cleaning machine.

MACRODI FIBER Co., Woonsocket, R. I. Fiber head warp and package spools.

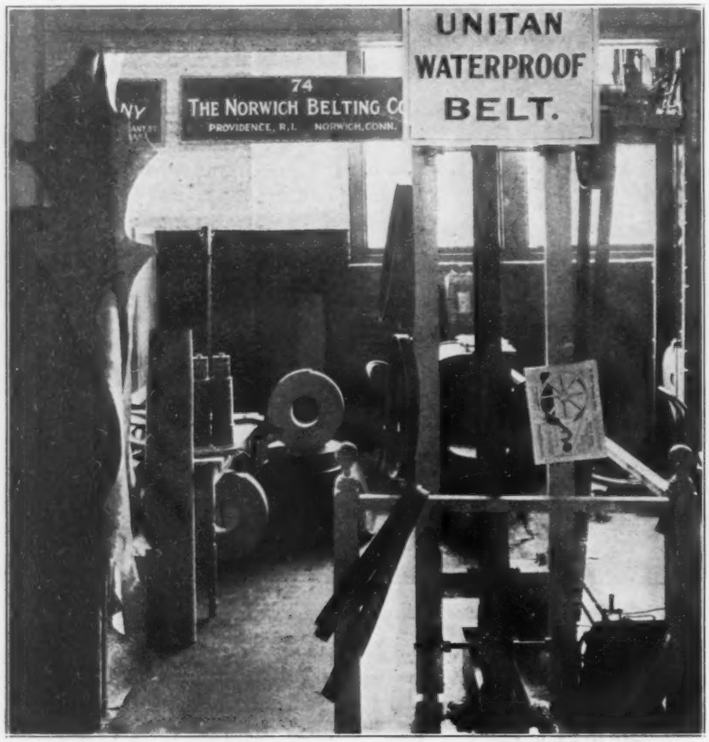
MARDEN, ORTH & HASTINGS Co., Lyster Chemical Co., New York and Boston. This exhibit, while not a large one, was a revelation to many manufacturers and dyers and showed what were sample ornamental bottles containing the extracts themselves. In addition to the above they also exhibited dyed skeins on Methylene Blue, Methyl Violet, Malachite Green Crystals, Victoria Blue and Auramine, which are being made in a factory which they control. The Methylene Blue is already being delivered and the other basic colors will be forthcoming at an early date. They have gone ahead without making much noise and are now producing a very excellent range of materials, which is doing its share to settle the dyestuff question. The Lyster Chemical Co.'s exhibit was in the nature of wood preservatives for mill use.

MOREHEAD MANUFACTURING Co., Detroit, Mich. Steam, vacuum and separating traps.

MORRIS & Co., Groveville, N. J. An instructive display showing how mill baskets are constructed to withstand severe and continued usage was provided. A frame with steel runners of their oblong duck mill basket, illustrated the manner in which the component parts are joined by means of their spiral forged joint, which makes the entire frame practically one piece of steel. With the frame there was a set of iron shoes, one of which is clamped on each corner when the runners show signs of wear. There was also a basket illustrating the way the frame is covered with cotton duck and bound with

leather, of a size extensively used for doffing in spinning mills. In addition, there were baskets equipped with wood runners, used for general mill service; square waste basket, a round, square bottom basket, in which brass eyelets are inserted for steaming yarns, largely used in woolen and worsted mills.

Morse Chain Co., Ithaca, N. Y. The exhibit of this company was in charge of John S. White, 141 Milk Street, Boston, manager of the New England office, and well known to textile men. The main feature of the display was a sample Morse silent chain drive capable of transmitting 100 h. p. This was a chain of two-inch pitch by five inches wide, run over sprockets, mounted on a heavy wood framework. It was driven by a small electric motor through a one-half h.p. Morse silent chain. The 100 h. p. sample chain drive was exactly like the line shaft drive and other applications of like capacity, while the smaller chain that drives it was similar to the small drive used on numerous textile machines, such as spinning frames, twisters, spoolers, etc. An ingenious arrangement on the shaft of the smaller sprocket permitted the entire movement of the Morse rocker joint of the big chain to be followed by the eye, the washers being left all joints on one side, thus explaining the construction. Another interesting feature was a six-cylinder gasoline engine from a well-known, high-priced automobile, with the casing removed from the front end to show the application of Morse silent chains in place of gearing in modern automobile design. A large glass sign illustrating a Morse silent chain on a sprocket, and framed pictures illustrating important applications, completed the display.



NORWICH BELTING COMPANY

Frank Mossberg Co., Attleboro, Mass. This concern showed their complete line of all-steel products for the textile trade, including warp beam heads, warp beams complete, steel spools, fiber head spools, jack spools, bobbins and drop wires. One interesting feature of the exhibit was the "unbreakable" steel warp beam heads, made from a high grade quality of steel, with cast iron centers; also drop wires used in connection with mechanical and electrical stop motions.

National Scale Co., Chicopee Falls, Mass. Prominent in this exhibit was the National Calling System, a new line for the National Scale Co., which is designed to call the heads of departments who are absent from their desks. It was evident that this new product is up to the high standard of other National lines and a wide application in textile mills is expected. The great speed and mathematical precision of National Counting and Weighing Machines which substitute mechanical accuracy for mental fallibility, was demonstrated. This method is faster by 100 to 1,000 per cent. than hand counting. The structural features of the National-Chapman Elevating Truck with special Hyatt roller bearings, axles, check and control, were shown with the advantages that have insured its successful adoption in many mills. Attractive descriptive matter of these lines and of the Multi-Unit Sectional Steel Shelving was distributed and the services of a staff of factory efficiency representatives were freely offered to manufacturers to demonstrate without obligation how and where savings can be effected by their products. This offer is extended to the trade in general.

New Bedford Foundry & Machine Co., New Bedford, Mass. Showed an automatic roving bobbin stripper, a machine to strip roving pieces from bobbins when taken from the creels of mules or frames by the back-boy or frame tender.

New York & New Jersey Lubricant Co., New York. One of the finest displays in the balcony was the exhibit of grades of non-fluid oil developed by this company, especially for the textile industry and designed for lubricating every machine employed in the carding, spinning and weaving of cotton. These lubricants possess advantages along the lines of insuring freedom from oil stains on material in process. Besides representatives from their regular sales staff, men who specialize on the lubrication of textile machinery were on hand to give mill men expert advice, and recommend lubricants that insure working at the lowest operating cost. The exhibit was in charge of W. F. Kimball, manager of the New England department. They distributed a text book on textile machinery lubrication, illustrating cotton machinery, and treating of lubrication difficulties and remedies.

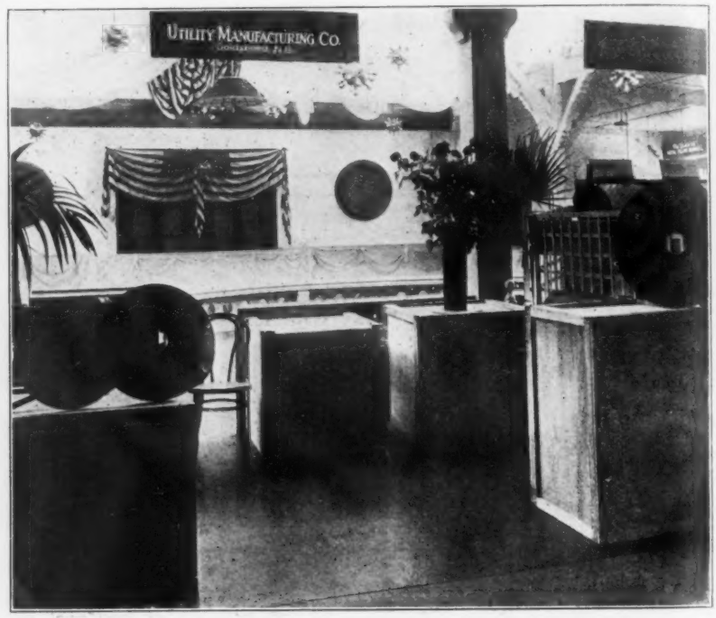
New York Revolving Portable Elevator Co., Jersey City, N. J. Three machines were on exhibition comprising the motor-driven, 2,500-pound capacity revolvator, a hand-power, 1,800-pound capacity revolvator, and a non-revolving steel tiering machine. An interesting feature was a demonstration of the new Model F revolvator with absolutely fool-proof arrangement. The gears are locked in elevating the platform, the brake being set anywhere the operator lets go of the handle. In order to lower the platform the handle must first be removed from the elevating shaft. This type has been evolved after a careful study of the dangerous features and it is impossible for ordinary accidents to occur even with a careless or forgetful operator. J. E. Williams, the New England agent, was in charge.

Normalair Co., Winston-Salem, N. C. In order that mill men might understand the operation of Normalair humidifiers, one of the three humidifiers in the exhibit of this company was used for dismounting and inspection, while the others were in operation. Each Normalier humidifier is equipped with an automatic humidity control, which prevents the production of too much water vapor. This control is easily set, and at any setting it is sensitive in its regulation of relative humidity through a wide range of temperature. The exhibit was in charge of the local manager, J. S. Slosson, with V. C. Barringer in attendance. The relative humidity can be controlled within 5 to 7 degrees in any variation in temperature.

Norwich Belting Co., Norwich, Conn. Well-known brands of belting such as Norwich oak, Acme, Chrome, and Unitan were on exhibition with a practical demonstration of a Unitan water and steam proof belt, running in hot water, showing what this belt will stand under the most severe conditions. They also showed their special Unitan cone belt, Universal winder belts, napper and planer belts; also process of manufacturing from the rough leather to the finished product, round belting, belt cement, regular and waterproof, of which they make a specialty. A most interesting feature was Unitan cone belts which have been in constant operation for ten years, something formerly considered impossible. The exhibit was in charge of A. F. Kelley, manager of the Providence branch, who distributed interesting circulars to those interested.

Old-Time Spinning and Weaving were shown in the balcony in exhibits by Mrs. N. J. Jackson, Newton Center, Mass., and "Aunt Mattie," Greenville, S. C. Mrs. Jackson's exhibit is no novelty to Textile Show visitors, but it never fails to interest. "Aunt Mattie" is a negress sixty one years old, and her skill in hand carding and spinning on a wheel said to be 150 years old was a source of wonder to both technical and non-technical visitors.

G. M. Parks Co., Fitchburg, Mass. Among the exhibits that every manufacturer makes a point of seeing is the showing of this enterprising concern. In a well-arranged space on one of the central aisles in the main hall, Turbo Humidifier heads were shown in operation on their patented ring construction, standard pipe line construction, and on the Turbo cluster tank, which is used only in small isolated installations. Pneumatic cleaning systems, the use of which in cotton mills has been standardized through the efforts of A. W. Thompson and the G. M. Parks Co., were demonstrated through the exhibition of various parts necessary for such an installation. One of the recent developments in this work is the featherweight pneumatic cleaning pole.



UTILITY MANUFACTURING CO.

To attain their ideals of what an automatic humidity control should be, they have experimented for the past four years on a device which is being introduced under the name of the *Psychrostat*.

The new Turbo Psychrostat for automatically controlling humidity described and illustrated in our last issue in detail was on exhibition for the first time.

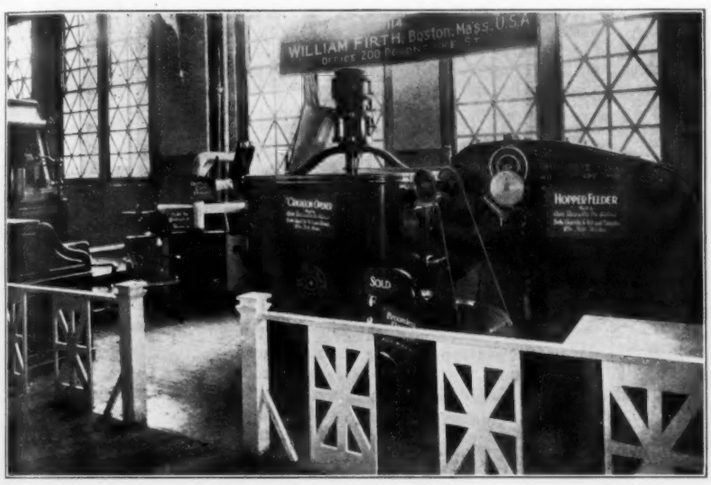
Moisture conditions in the booth were indicated by the frequent shifting of the control and automatically shutting off or opening Turbo heads. A chart showing the name and location of mills in which Turbo Humidifying equipment has been installed, made an impressive display.

To those interested, there was given away at the booth, a new vestpocket humidity computing scale, recently de-

signed by Mr. Thompson, which will prove invaluable to mill men in determining humidity conditions.

R. S. Parks, F. W. Parks, A. W. Thompson, and various members of their force, were kept busy explaining the various methods during the week.

Parks & Woolson Machine Co., Springfield, Vt. They exhibited an A. W. C. measurer with Kaumagraph trade-marking attachment and a Lancashire winder with many interesting attachments. The A. W. C. machine measures all kinds of cotton, wool, worsted and silk goods under no tension whatever. Some of the important new attachments are a yard printing device, automatic stop, and a two-yard expansion drum. It may be used either for folding or rolling, giving a flexibility that is appreciated by mills. The Lancashire winder was shown winding cotton goods. This machine has been



WILLIAM FIRTH

designed especially for inspecting, measuring and winding. It has a quadrating dial, a throw-out for cutting out damaged portions, which eliminates any figuring for the operator, also a spring equalizer which drives the measuring drum perfectly steady. Fred R. Sturtevant, of the sales force, was in charge of the exhibit, which was held in connection with the Kaumagraph Co.

The Permutit Co., New York. The most interesting feature of this exhibit was the usual demonstration of the "Permutit" process by means of a small glass filter. Many of the most prominent dyers, finishers and bleachers were invited to bring a small sample of the water from their plants and they were shown how completely and effectively a "Permutit" filter will soften the water, reducing it to absolute zero. A "Permutit" filter, 24 inches in diameter and 8 feet total height, which represented exactly the type of machine installed in textile mills throughout the United States made an imposing display. Special interest was shown in the exhibit this year due to the fact that the water rectification plant now being installed at William F. Taubel, Inc., Riverside, N. J., by this company, is one of the biggest things of its kind in the United States, if not in the world. Manager of sales and textile representative A. R. Calvo, was as usual in charge, assisted by M. F. Corin, Philadelphia representative, and they proudly displayed the gold medal awarded to the Permutit Co. for water softening equipment at the Panama-Pacific International Exposition at San Francisco.

Phi Psi Fraternity, Boston Alumni Chapter.

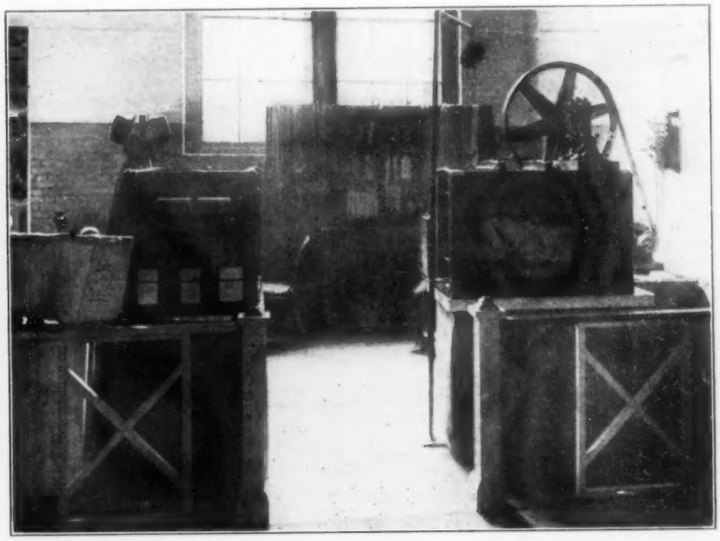
Philadelphia Drying Machinery Co., Philadelphia. The large drying machines shown by this company on the Huntington Avenue side of the main hall, made an imposing display. These consisted of a "Hurricane" automatic stock dryer, equipped with self feed, for wool, hair, cotton stock, etc., also a truck yarn dryer for skein yarn braids, etc. Both machines are of fireproof construction, with housings of steel and enclosed with panels made of double-thick steel sheets, insulated with air cell asbestos. They were shown complete in every detail, and were in operating condition driven by individual motors. These machines illustrated the best engineering practice, and the final result of specializing for many years on drying equipment. They also showed numerous illustrations of their latest improved machinery for dyeing, bleaching, singeing, conditioning, and finishing from raw stock to the finished product, with pictures of installations in many representative plants throughout the country. W. W. Sibson, secretary and treasurer, and E. L. Smith, New England manager, were at the exhibit.

Rhode Island Humidifier & Ventilating Co., Providence, R. I. One of the most interesting humidifying and ventilating displays was that of the Kelly system shown by this company in a prominent space. The system was in operation with the air and the water both under pressure, operating at 25 pounds. There are no return pipes and all the water is evaporated. At 25 pounds pressure it is claimed this system will produce a relative humidity of 70 degrees, at 80 to 90 degrees F. with one head to 50,000 cubic feet. Four and one-half gallons water per hour are atomized and thirteen cubic feet free air per minute are developed. The heads will not stop up or clog and the system combines advantages which practical mill men present were quick to appreciate. A circular was distributed to those interested which contained information on the construction of the cotton fiber with the effect of humidifying, also a statement of the results accomplished by Kelly humidifiers and a list of mills recently equipped. George W. D'Arcy, general manager, was busy during the week explaining the system to mill men.

Rochester Germicide Co., Boston. Disinfecting appliances, bubbling fountains.

Roessler & Hasslacher Chemical Co., New York, peroxides and perborates, had a space on the stage of the main hall. To the trade inquiring for their products, it was stated that work on repairs at the plant at Niagara Falls has progressed favorably, and they expect to begin delivery about May 1.

C. J. Root Co., Bristol, Conn. Counting and measuring machines for use on looms, folding machines, rolling machines, twisters, calenders, and other textile machinery were exhibited and demonstrated under the direction of Arthur E. Kallinich, assisted by Superintendent A. D. Somers; foreman of the counter department, John Gruitt, and Wm. J. Warden and Arthur J. Wasley of the sales department. John T. Chidsey, secretary and treasurer, was in attendance on Wednesday, Thursday, and Saturday. Many interesting facts were demonstrated to mill men regarding the adaptability of counting machines in checking up and increasing production by securing records, accurate, reliable, and immediate records, regarding production that are not readily available in any other way. The sturdy simplicity of the devices and ease of attachment to textile machinery were shown.



HUSSONG DYEING MACHINE CO.

Rose Label Machine Co., Grand Rapids, Mich., showed one of their label stitching machines for attaching labels to underwear and fabrics.

Ryalls Machinery Corp., Charlottesville, Va. Reverse spindle motion attachable to woolen mules.

The Saco-Lowell Shops, Boston, Mass. Most of the manufacturers, superintendents and overseers present during the week visited the large space occupied by the exhibit of the Saco-Lowell shops, where cotton preparatory and yarn machinery was shown in operation. A comfortable reception room fitted up for their many visitors added greatly to the value of the exhibit. Their method of working cotton waste was featured. One of the most important new things shown was the new vertical opener embodying many new features not found in other makes of Creighton openers, including the method of grate bar adjustment, and self aligning ball-bearing boxes. The improvements in finish and design attracted much attention. A 4-coiler card occupied a prominent part of the space. This was equipped with their latest front, and clothed with Ashworth's 5-ply rubber fillets, especially adapted for waste. A 9 x 4½-inch slubber adapted to the working of waste, but otherwise the same as the regular Saco-Lowell roving frame, which is so favorably known to the trade, added to the completeness of the display. Two spinning frames were shown, one adapted to spin waste and cottons with short fibers and the other designed to spin the longest staples of cotton. One side of the latter frame was equipped with self-weighted rolls, and one side equipped with the regular weighting which is common in this country. The general features of the machine are the same as the spinning frames they now have on the market, but it has many refinements and improvements which spinners appreciated. An improved spooler known as the "filling wind" was in operation with two different styles of tension, both of which are giving excellent results in many mills. The general design of this machine with its unique features, locking doors, enclosed mangle wheel and supply device puts it in a class by itself. A twister which has been redesigned with the result that it now has all the latest improvements, attracted a great deal of attention. This machine is now so clear cut and well balanced that it is a machine that the Saco-Lowell Shops may well be proud of. A 24-page booklet illustrating the machines used in their method of working cotton waste was distributed gratis.

Scott & Williams, Inc., Boston, Mass. Improved hosiery machines of their manufacture, including a representative line of revolving cylinder hosiery machines illustrating all the latest attachments, were featured in this display of modern knitting machinery. For half hose there was a Model G machine, which makes a sock complete, each stocking being dropped from the machine complete except for the looping of the toe. For hand transferred socks and for hand transferred misses' footing they exhibited machines with their latest device of automatic means for preparing the machines for transfer. By this means the machine starts and stops automatically and all the operator has to do is to handle the point ring. For women's hose the new fashioned welt machine, Model K, which produces women's hose with an inturned knitted welt, similar to that produced on full fashioned machines was shown. The machine has all the features of the other models, each stocking being dropped from the machine complete except for the looping of the toe. It was fitted with five yarn changing fingers, inserts an "anti-run-back" course, and the welt knitted on the machine has all the elasticity of the fabric, and may be as wide as desired. It was pointed out that all these machines are designed so that any model may be fitted with the necessary parts to alter it to any other model. They also had on exhibition some of the well-known Scott & Williams underwear machines. P. J. Smith, Jr., was in charge.

Henry L. Scott & Co., Providence, R. I. Four absolutely new testing ma-

chines that have never before been exhibited or offered for sale were included in the large exhibit of Henry L. Scott & Co., and with the tire fabric tester which also was shown for the first time, were easily the features of this space. The four new machines are single strand testers, ranging in capacity from 10 pounds to 50 pounds, both hand and power operated. Like all other Scott testers, these machines are constructed on the dead weight principle and have no springs or delicate parts to requre attention or adjustment. They are mounted upon strong, well finished oak back boards for fastening to the wall. Of special interest was the electrically driven machine as it is the first time the electric drive has been applied to a single thread testing machine. The tire fabric tester was centrally displayed and proved to be the center of interest. The machine is of the horizontal type, convenient for heavy work and has constructural advantages in leaving all parts in full view and easily accessible. The parts are protected, making it impossible for the samples to catch or the operator to be injured. Other testing machines shown in this complete exhibit were the automatic power yarn tester, hand operated cloth tester, automatic power cloth tester, combination automatic power yarn and cloth tester which is in use in three different departments of the U. S. Government, yarn inspector or examining machine, rubber and fabric tester, which was shown for the first time, rubber tester, motor driven universal tester, developed for the U. S. Navy Department; and a line of reels, scales, measuring reels and twist counters, etc. Henry L. Scott, David C. Scott and H. A. Hopkins were in attendance during the week.

THE SELECT-O-PHONE: The SCREW MACHINE PRODUCTS CORPORATION, Providence, R. I. One of the striking and interesting displays was that of the Select-o-phone. The exhibit was bounded on the back and one side by a white wall six feet high, which served as a background. Upon the walls a series of posters with explanatory lettering underneath illustrated and described various strong features claimed for Select-o-phone service. The first poster showed a business man holding the outside telephone wire while he used the Select-o-phone to obtain needed information from some department in his plant.

The next pictured a telephone operator busily engaged in stenographic work, her time being no longer occupied in handling interior telephone calls. The third illustrated how the Select-o-phone saves the executives' time.

These three posters occupied one-half of the back wall. The other half was taken up by a poster picture conveying the advantages of the general calls. The idea is that a man is needed at once although he is away from his own office, and cannot be reached at his station number. The person wanting him simply moves the dial of the Select-o-phone to general call and gives prearranged signal for the party wanted which rings throughout the plant.

On the side wall the illustration shows in use the conference wire, another important feature of Select-o-phone service. By means of this an executive can call a conference of two or more department heads at a moment's notice without wasting his own or their time, and without calling them away from their work. The Select-o-phone automatic switch board was shown and six stations with telephone instruments installed at different points of the exhibit. The service was shown in actual use, and workings of the automatic switch board appeared clearly under the glass covering of the case.

Various pieces of literature were distributed.

Mr. George Kollstede represented the Screw Machine Products Corporation in charge of the exhibit.

WILLIAM SELLERS & CO., INC., Boston. Among the notable power and transmission exhibits was the display of William Sellers & Co. They showed a full line of transmission material, including new designs in belt carriers, guide pulleys, binder frames and double carriers. Adjustable binder frames, guide pulleys and bicycle drives for driving spinning frames were featured. An interesting collection of photographs showed installations of Sellers' transmission equipment in the new plant of the Naumkeag Steam Cotton Co., of Salem, together with various installations in prominent mills. Booklets and other printed matter were distributed. The exhibit was in charge of C. F. Underwood, New England sales agent, and C. A. Wallace.

THE S. K. F. BALL-BEARING CO., New York. In the center of the space there was a pyramid of S. K. F. ball-bearings, showing bearings all the way from those smaller than a dime to those of 20-inch diameter, with a carrying capacity of over 120,000 pounds. Some of the bearings are in use in silk spindles running at over 15,000 r. p. m. There were also shown S. K. F. & J. ball-bearing twister spindles as made by Fales & Jenks; beater boxes as made by Saco-Lowell shops, H. & B. American Machine Co. and Hubbard Machine Co. These beater boxes are for cotton pickers. Also ball-bearing boxes for main cylinder of woolen and cotton cards. There was also the vertical step-bearing of the new Creighton opener as made by the Saco-Lowell shops, one of the most interesting mechanical constructions in the show. Other features were a frame showing S. K. F. ball-bearing hangers, with an attachment so that the self-aligning feature might be demonstrated by the visitors. Much attention was paid to making the exhibit comfortable and attractive, so that men interested might come in and talk over the ball-bearing proposition. Albums were shown, one containing the photographs of prominent textile manufacturers and engineers, with letters giving their opinions in regard to ball-bearings on textile machinery, and showing the various applications on textile machinery. Their exhibit was in charge of E. A. Allen, New England representative; L. L. Nakashian, assistant New England representative; R. E. Patterson, manager of the transmission department, New York office; A. G. Norris, assistant manager; A. D. Shaw, Eastern Pennsylvania representative; F. V. L. Smith, Southern representative; A. V. Farr, advertising manager, New York office, and Mr. Scott, of the Hubbard Machine Co., Worcester, Mass.

STAFFORD COMPANY, Readville, Mass. As in former years the Stafford Company had one of the feature exhibits of the Show, occupying over 1,000 square feet, which was notable alike for its well planned and executed decorative scheme and its comprehensive display of modern weaving machinery. The decorative features were dignified and rich with columns and frieze finished in fumed oak, draped in pleatings of soft green plush. The gate posts were topped with glass and bronze electroliers and the entire space was panelled in fumed oak and green burlap. Heraldic carved shields, the trade-mark of the company, were prominent on the wall ends of the exhibit, flanked by galaxies of flags. An immense electric sign, 30 feet long, over the exhibit, formed a brilliant illumination. Six "Ideal" automatic looms, operating under mill conditions, were shown making a wide range of fine, fancy and heavy cotton goods and worsted dress goods. The style of loom and class of goods made were as follows: A 40-inch loom on plain sheetings, 80 x 80, with 28s warp and 44s filling. A towel loom, equipped with a two-cylinder dobby, making towels, 50 x 33, with 10s warp and 10s filling. A 36-inch corduroy loom equipped with special Stafford heavy type corduroy dobby, making corduroy, 36 x 350, with 30/3 warp, and 21s filling. This dobby has been developed to take the place of side cams. A 76-inch worsted loom, making a handsome piece of worsted dress goods, 60 x 66, with 40/2 warp and 28s filling, having as a special feature a positive dobby. A tube loom making pillow tubes, 64 x 68, with 24s warp and 42s filling. A fine goods loom making a piece of lawn, 74 x 68, with 60s warp and 60s filling. Two of the above looms were running with individual motors, the others belt driven according to ordinary practice. The exhibit was in charge of W. Wood Smith, sales manager, assisted by Fred H. White, Charlotte, Southern agent, also Messrs. MacKay, Kean, Hatch and Dunn, assisted by a force from the plant at Readville. G. P. Erhard, the treasurer, and C. W. Lillie, assistant treasurer, were present several days of the week. The addition to the plant at Readville, which has been under construction for several months back, is nearing completion, and new space will shortly be available which will double the productive capacity for "Ideal" automatic looms.

STEEL HEDDLE MFG. CO., Philadelphia, Pa. The exhibit in the space of the Steel Heddle Mfg. Co. was confined simply to heddles and frames which were explained to visitors by Robert J. Freitag, secretary of the company, and J. H. Hill, Eastern representative. But their space showed only part of the exhibit as their products were in operation on the looms of the Draper Co., Crompton & Knowles, and the Stafford Co., among the loom manufacturers, giving a valuable practical demonstration. It is interesting to note that the exhibits on the part of the loom manufacturers were made voluntarily, which indicates the general satisfaction secured from their heddles and frames.

ALFRED SUTER, textile engineer, New York, exhibited a series of yarn and cloth testing apparatus as follows: Direct yarn numbering scales, on which a 120-yard skein will show the number of the yarn on the dial; two kinds of yarn or hank roving reels; twist testers with take-up registering device and magnifying glass for getting the spinning twist; yarn examining machines for inspecting yarn on black velvet covered aluminum boards and for making record cards for filing or mailing purposes; single strand strength and elasticity tester, with oil-tank controlled pull; cloth strength testers, made also for twine or skein testing; conditioning ovens for raw stock, yarns and cloth; a new ball or tension device which has proved especially advantageous in spooling directly from filling wound bobbins —absolutely even tension is obtained, all warper spools have same length of yarn at same wind, resulting in even warps and the elimination of waste; reed brushing and polishing machine with circular brushes; and several other devices. Mr. Suter had on hand many catalogs of machinery and scientific devices, and his exhibit created a great deal of interest among manufacturers.

C. J. TAGLIABUE MFG. CO., Brooklyn, N. Y. Their exhibit was the first general showing to the textile industry of Tagliabue automatic controllers for various applications and processes. These controllers are used for automatically maintaining any desired temperature under conditions of all kinds. For example, they are adapted to dyeing, drying, bleaching, sizing, steaming-box and wool-washing applications. Attention was also called to the Hohmann-type thermometers, for the applications mentioned above, and hydrometers for textile manufacturing and numerous other industries. Representatives at the show were A. B. Hohmann, V. Wichum and R. S. Mackie.

TOLEDO SCALE CO., Toledo, Ohio. Automatic scales, including dormant, portable, hanging lap and counter lines. The models shown were especially adapted to the weighing of cotton and wool, and included cloth room scales, picker room scales and fine checking scales for yarns or dyestuffs. Many good prospects were developed during the exhibition. The exhibit was in charge of the Boston office, 61 Hanover St., J. J. Quinn, and W. E. Phinney, managers.

TOLHURST MACHINE WORKS, Troy, N. Y., exhibited their latest type over-driven self-balancing hydro-extractor, driven by a motor directly belted to the extractor, the motor being placed at the rear of the machine. The motor is of special design, which does not require a starting rheostat or any kind of starting device except a simple oil switch. D. C. Patton and E. W. Vincent were in charge. The over-driven extractor exhibited was equipped with a type of basket commonly used in dye houses and bleacheries, namely, one having a bronze top ring, a copper side sheet with basket bottom covered with sheet copper and the inside coated with tin. This construction has been found suited for bleaching and dyeing delicate colors and to work that must be kept clean. The self-balancing feature, consisting of a flexible step-bearing, takes care of unbalanced loads without the aid of rubbers and springs, and with easy action on the bearing. The extractor was fitted up with a safety guard and with the other improvements characteristic of the Tolhurst extractor.

TORSION BALANCE CO., New York. An important new exhibit show for the first time in Boston was the "Chainomatic" balance of Christian Becker, Inc. These scales avoid the use of small weights and are being rapidly adopted by chemists on account of their extreme accuracy and saving in time. In addition their line of calculating scales was shown. These devices give weight per yard of woolen goods in ounces, also yards per pound, from small samples. Hosiery and underwear scales give weight per garment, also per dozen at one weighing. W. Clark Symington and S. W. Hess were in attendance.

LEWIS E. TRACY CO., Boston. A line of mill supplies including a demonstration of cut off coupling.

TRANSMISSION BALL BEARING CO., Buffalo, N. Y. An interesting exhibit of ball bearings to fit any style hanger and showing special application for textile mills, was provided by this company. The display included a full line of Chapman ball bearings for transmission purposes with some of the special applications which have been largely adopted in Canadian installations. There was in operation a testing stand, graphically illustrating the percentage of saving in operation of the Chapman ball bearing over an ordinary bearing. Tests were made from time to time as visitors wished, this forming an educational as well as an interesting feature. Their Universal elevating truck which has some distinctive features and is new to the New England market, was also

shown. The exhibit was in charge of H. O. Edwards, advertising manager, with C. M. Murray, secretary and treasurer; J. S. Kunkle, manager of the Philadelphia office, and A. C. Shroth, were in attendance during the week.

Uniform Dyeing Machine Co., Groveville, N. J. An exact duplication in reduced size of their machine in use in black dyeing and bleaching with lime and peroxide, hosiery of various descriptions. The machine was so constructed that the method of loading, operation, preservation and prevention of injury to the stock in treatment might be seen at a glance by the many visitors to the space. The compactness of the machine, the facility with which the work was handled, and the preservation of the stock in process were readily noted. The same machine may be, and is employed for the coloring of bolts of knitted cloths, chain warps, shoe strings, corset laces, tapes, braids, and the like, and the adaptation of the machine for the treatment of such stock and efficient penetration of the liquor, the course of which is reversible, was readily understood by those seeking such information.

U. S. Bobbin & Shuttle Co., Providence, R. I., provided a display of shuttles for cotton, woolen and worsted weaving on plain and automatic looms. There was also an interesting display of shuttle parts and fittings. In the center of the space was an arrangement of spools and bobbins in various sizes and styles.

U. S. Gutta Percha Paint Co., Providence, R. I. Their space was characterized by a general white scheme, everything painted a glossy white, demonstrating the practical results obtained by Rice's Mill White in over 3,000 of the leading plants of the country. The exhibit was surrounded by a white lattice enclosure about 5 feet in height, having large white pillars at each corner. Special prominence was given to views of large concerns using their product and among these views was a striking painting of a factory building, the roof being lifted by a large hand. A souvenir jitney bus game, white pencils and pads, and descriptive literature were distributed to induce further reflection on paint efficiency and making the most of daylight in manufacturing plants. This printed matter included the famous "More Light," "Yellow Peril," the U. S. Gutta Percha Paint guarantee and "The Story of the Oldest Cotton Mill." Alexander S. West, General Sales Agent, was in charge, with George Hazard assisting. Herbert W. Rice, Charles W. Eastwood and G. D. Moore were at the space Wednesday, Thursday and Friday.

Universal Winding Co., Boston. Refinements that mean more profit to mills were the dominant feature of the well planned exhibit of the Universal Winding Co., Boston, which occupied the same spaces as in the exhibition of 1914, and was of even greater interest than previous notable displays. There were shown several new machines which have been in process of development and which are now ready for the market. Among these the "new wind" doubler attracted attention, as the operation of this machine is based upon a principle entirely different from that of any method of winding now in use in textile mills. The machine combines the best elements of the different methods of winding, and for the handling of fine yarn in doubling as a preparation for twisting it, appears to be far in advance of former methods. The question of warping is coming prominently to the front, as no marked improvement has been made in this for several years past. The magazine creel shown making ball warps enables the warper to be run continuously at high speed, except when doffing the beam or ball, and will be of great economic advantage in the line of warping. In addition an exact uniform tension is maintained on each thread which insures great improvement in the making of perfect beams and perfect cloth. Other new developments shown were a new type of counter shaft for light machinery and a new adjustable beam head which should find a wide use. Regular types of machines shown on which refinements in design and construction have been made, were three gangs of No. 90 filling winder, one gang on tire fabric yarns, one gang on fine cotton filling and the third on Bradford spun worsted filling; four gangs of Standard 50 coning machines on mercerized ply yarns and fine single cotton knitting yarns; two magnet winders, one in operation winding magnets for the United States Government and the other winding samples of a new type of magnet. The interval of two years elapsing between these exhibitions has given time for the full development of these new processes, as well as for several substantial improvements in regular types of machines which were also exhibited. Manager F. H. Bishop, who is also president of the Textile Exhibitors' Association, was very much gratified with the large number of exhibits and the variety and value of displays, particularly of new developments. Mr. Robert Leeson, the treasurer, was at the exhibit often and was busy meeting mill men. Mr. Leeson and Mr. Bishop were assisted by a large force from the plant and various offices, who also helped in demonstrating the machinery and receiving mill men.

Utility Manufacturing Co., Goldsboro, N. C., manufacturers of veneer packing cases and warper heads, showed a display of packing cases especially suitable for the textile trade. The features of strength, combined with light weight and neat appearance with freedom from knot holes, were effectively given prominence. President J. L. Borden was personally in charge of the exhibit and discussed with many manufacturers the advantages of three-ply veneer material for shipping goods safely with a minimum of weight.

Veeder Manufacturing Co., Hartford, Conn. Counters for every textile purpose were demonstrated to visitors at the space of the Veeder Manufacturing Co., as well as the various other products in related lines manufactured by this concern. Counting and recording devices are amply demonstrating their value on textile machinery and their application is constantly growing for they are compact and sturdy and designed to be easily applied. W. C. Waldo and C. A. Rossberg explained their usefulness in giving records regarding efficiency and in addition to counting and measuring, their use along the lines of supervision, increasing and checking up production and providing a basis for wage systems. Some of the counters exhibited were the loom pick counter; hank counter for roving, drawing, ring frame and mule spinning; lineal measuring counter; set back counter; thread measuring counters; sewing machines stitch counter; clutch speed counter; set back hand tally counter.

Vitreous Shuttle Eye Co., Providence, showed porcelain shuttle eyes for hand threading and automatic loom shuttles.

Westinghouse Electric & Mfg. Co., East Pittsburg, Pa. Appreciating the great importance of the textile industry in the power field there was an interesting exhibit in the main hall of electrical apparatus manufactured by this company for use in textile mills, under the direction of the Boston office. This exhibit included a number of newly developed types of motors for driving looms, spinning frames and pickers. Especially developed types of control for these motors were also shown, also the micarta duck pinions of various sizes for connection of motors to the driven machines. The use of ball bearings in the motors for this purpose was also demonstrated. The Westinghouse Lamp Co., which was associated with the Electric Co. in the exhibition, also showed a complete line of incandescent lamps for lighting textile mills. Considerable importance is being attached at the present time to the lighting of manufacturing plants along scientific lines, and the Westinghouse companies showed these in considerable detail. Personal and circular letters had been sent out in advance inviting mill men to the show and a large number of manufacturers and engineers were greeted at the space. The exhibit was in charge of S. P. Smith and C. D. Bowne with G. D. Bowne, Boston office; J. R. Olnhausen, East Pittsburgh; S. St. J. Morgan, Boston office; C. S. Davis, Westinghouse Lamp Co., Boston office; E. Reid, advertising manager, Westinghouse Lamp Co., New York, were also in attendance during the week.

Whitin Machine Works, Whitinsville, Mass. Not the least important of the exhibits in the main hall was that of the Whitin Machine Works. They featured three Whitin wool cards and a wool ring spinning frame, a development that has been the aim of numerous inventors. The Whitin-Owen loom with feeler and pick motion attracted considerable attention, as did a spinning frame with variable speed motor, cotton comber and roving frame with self balancing rails.

Whitinsville Spinning Ring Co., Whitinsville, Mass. A center of interest in the balcony was the attractive display of spinning and twisting rings for cotton, worsted, silk and jute, made by this old established company. These rings all had the regular diamond finish which, since 1910 has been a feature of all their products. This finish permits easy starting of the traveler, meaning less ends broken, minimum waste and higher production. Rings ranging from 1 inch to 8½ inches inside diameter were shown, the smallest for spinning fine cotton yarns and the largest for twisting tinsel cords on special twisters. A feature was 3 to 6½ inch rings used for twisting tire fabric yarns. They also showed traveler cups used for the convenience of workers and to save waste of travelers, also guide wire sets, a novel device for centering thread guides on spinning and twisting frames. Edward B. Smith was in charge and explained these special products, which have been made exclusively by the company for 43 years, to many mill men.

Isaac Winkler & Bro., Cincinnati, Ohio., exhibited in balcony, showed samples of Prosperity Soda (Blue Label), and demonstrated to the mill men that this product contains ammonia "locked in," and contains no perceptible odor of ammonia until the soda reaches water, which practically means manufacturing ammonia as needed. G. A. Buchanan, advertising manager, and J. C. Allen, New England representative, with men from the force of the Woodley Soap Manufacturing Co., of Boston, who are distributors of Winkler products in New England, were on hand to receive the large number of mill men who visited the space.

Woonsocket Machine & Press Co., Woonsocket, R. I. An important cotton yarn preparatory machinery display was arranged in a well-located space in the main hall, showing for the first time a new model, 6 x 3 Woonsocket roving frame, in operation. There are no new revolutionizing changes, such as the Daly chain drive, or the Campbell ball bearing rolls this year, but the machine is a distinct improvement. It has been made more accessible and in every way more satisfactory to the operative and the manufacturer. All bobbin and spindle rail gears are inclosed by sheet metal gear cases, and thus are kept free from lint and dust, also reducing the possibility of accidents and fires. They also showed a four-delivery drawing frame and a Harrington & Barrie reverse motion spindle frame cleaner, manufactured by the Fales & Jencks Machine Co. Representatives very much in evidence were John Montgomery, shop manager; J. H. Mayes, southern agent; R. L. Cummock, Jr., of the sales force, and J. H. Windle, 100 Summer Street, Boston, Northern representative.

M. Heminway & Sons Silk Co., Watertown, Conn. An instructive exhibit of the products of this well known concern was displayed in the balcony. Raw silks were shown with silk in all stages of manufacture up to the finished product. The progress to the finished thread was interesting to a large number of visitors. The exhibit of finished products included embroidery, knitting and crochet silks, machine twists, etc., in a wide range of beautiful colorings. The excellent workmanship apparent in these products and the attractive shades and manner of putting up were features. Bert Dytch, manager of the Boston office, was in charge of the exhibit, assisted by R. Luft.

National Power Show at Boston

THE Third National Power Show under the auspices of the New England Association of Commercial Engineers was held in conjunction with the Textile Exhibition and occupied the basement of Mechanics Building. The officers worked hard to make their department of the exhibition a success and the number of displays reflected great credit on their efforts. Many manufacturers and dealers in power and engineering equipment availed themselves of the opportunity to bring their product to the attention of textile manufacturers, and a representative showing of power and transmission equipment and supplies was brought together. The prospective business and actual sales resulting from the Power Show are exceedingly encouraging. A number of prominent manufacturers and dealers in power and transmission equipment were located on the main floor with the textile exhibits, retaining the spaces occupied by them in previous shows, and these exhibits are reported under the Textile Show. A detailed description of some of the more important displays with a full list of all the exhibits in this department follows:

Albany Lubricating Co., Adam Cook's Sons, New York (Power Show). Showed complete line of the different densities of the Albany grease for all textile purposes, and other greases for every purpose.

Allen Manufacturing Co., Hartford, Conn. (Power Show). C. H. Parks showed the safety set screws, socket cap screws, and tap extensions manufactured by this company. The set screws formed the most important part of the exhibit on account of their safety feature. The socket cap screws are a

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big improvement over the old slotted kind, because of their superior strength, and they can be set up hard and loosened as often as desired without marring the head. The tap extensions are very handy, save the expense of special taps, and are practically new.

AMERICAN LA-FRANCE FIRE ENGINE Co., Boston (Power Show). Fire extinguishers.

AMERICAN OIL Co., Providence, R. I. (Power Show). Lubricating oils and greases, also chart explaining the manufacture of oils from the crude state to the finished product. F. Lockwood in charge. Messrs. Campbell, Babbitt and Price in attendance.

AMERICAN STEAM GAUGE & VALVE MFG. Co., Boston (Power Show). Plain and recording gauges, valves, traps, filters, indicators and other boiler and engine room specialties; featuring the American ideal steam trap and Howard improved ball blow-off valve. Exhibit in charge of U. H. Nickerson and J. E. Swendeman.

G. P. ANDERSON & Co., Boston (Power Show). Steam specialties and supplies.

WILLIAM ANDREWS, INC., New York (Power Show). Deoleizer which is intended to take out oil from condensation returns.

THE ANNEX Co., Boston (Power Show). Automatic device for maintaining uniform room temperature.

V. D. ANDERSON Co., Cleveland and Boston (Power Show). Anderson steam trap, steam separator, oil separator, air trap, high and low water alarm water column, and the new junior Anderson steam trap. Represented by L. A. Couch and Fred M. Couch, New England representatives.

THE ASHTON VALVE Co., Boston (Power Show). Line of pop safety and relief valves, gages and four kindred instruments for air, ammonia, steam, water, etc. Also dead weight gage testers, whistles, recording gages, master gages, etc., featuring the Ashton sanitary bubbling drinking fountain. Represented by Harry H. Ashton and William H. Hampson.

ATWOOD & MORRILL, Salem, Mass. (Power Show). Showed steam specialties.

AUTOFORCE VENTILATING SYSTEM, Boston (Power Show). This display consisted of a 4-inch autoforce ventilator mounted on a pedestal. Major J. W. H. Myrick was in attendance during the week, and discussed ventilating problems with engineers and mill men who visited the Power Show.

AUTOMATIC SHAFT COUPLING Co., Washington, D. C. (Power Show). One of the strongest exhibits of the Power Show was shown by this company. It consisted of a compete line of "Bull Dog" shaft couplings and set collars, which were demonstrated to visitors. The couplings were in sizes for shafts from 1 3-16-diameter to 8-inch diameter, and set collars for shafts 1 3-16-inch to 6-inch diameter. No tools are necessary in applying these couplings and they owe their popularity largely to the fact that there are no projecting parts whatever. They are carried in stock by many of the leading machinery dealers and supply houses. A safety water column suitable for any style of boiler was also shown.

AVERY & COOPER, Arlington Heights, Mass. (Power Show). Steam traps and packings.

S. F. BOWSER & Co., INC., Fort Wayne, Ind. (Power Show). Self-measuring oil pumps and tanks, oil filtration, remote control oil system.

W. W. CAREY Co., Lowell, Mass. (Power Show). Pulleys and power transmission equipment.

CHAPMAN VALVE MANUFACTURING Co., Indian Orchard, Mass. Power Show). A line of steam valves.

CHICAGO PNEUMATIC TOOL Co., Boston (Power Show). Compressors, drills and grinders.

CLIMAX SMOKE PREVENTER Co., Boston, and MCCLAVE-BROOKS (Power Show). Model of boiler front, equipped with smoke preventer, and shaking and dumping grate. B. L. Ames, representative of the Climax Co., Sanford C. Smith, manager of the McClave-Brooks Co., and Mr. St. John, New England representative of the McClave-Brooks concern in attendance.

CONSOLIDATED ENGINEERING Co., Boston (Power Show). Steam heating apparatus and specialties, including air washers, fans, etc. Messrs. Barnes, Jones, Bryant, and Bussey answered numerous inquiries.

COPPUS ENGINEERING & EQUIPMENT Co., Worcester, Mass. (Power Show). Coppus turbo blower for mechanical draft in operation run by electric motor. Exhibition in charge of sales manager, John L. Gallivan, assisted by Francis Galvin. The president, F. H. C. Coppus, was in attendance several evenings of the exhibition.

CRANDALL PACKING Co., Boston (Power Show). Packing and valve discs, Gem gasket cutter. John P. Riley, F. W. Detheridge, A. M. Pinto, Mr. Tripp and E. A. Hare in attendance.

DEARBORN CHEMICAL Co., Chicago (Power Show). Feed water treatment. P. H. Hogan, New England manager, met old and new friends and acquaintances.

EAGLE OIL & SUPPLY Co., Boston (Power Show). Boiler metal treatment, recorders, gauges, packing.

ECONOMY LUBRICATING Co., Boston (Power Show). Lubricating grease and boiler compound. Harry H. Atkinson, proprietor, in charge.

EDISON STORAGE BATTERY Co., Orange, N. J. (Power Show). Trucks, tractors and locomotives.

EDWARD VALVE & MANUFACTURING Co., Boston (Power Show). Various kinds of valves.

ENSIGN MANUFACTURING Co., Boston (Power Show). Electric calculating machines in three sizes, including a new machine which was never before exhibited.

F. W. FOSTER & SONS Co., Boston (Power Show). Grates, valves, feeders, cocks, floats, steam and vacuum traps, etc.

GARDNER GRATE Co., Boston (Power Show). Grates and "I-Gard" shield and reflector for water gauge glasses.

GARLOCK PACKING Co., Boston (Power Show). Steam, water, gas, air, ammonia packing.

GREENE, TWEED & Co., New York (Power Show). Reversible ratchet wrench for nut turning and packings. Samples of Palmetto twist for packing globe valves and Palmetto braided, both round and square, for packing pumps and engines, were distributed. Geo. R. Starrs was in attendance.

HARRISON SAFETY BOILER WORKS, Boston (Power Show). A 30,000 pound per hour V-notch feed water meter in operation. A DeLaval centrifugal pump, motor driven, circulating water continuously. Also separators and valves. C. E. Anderson and Elliott Greene, representatives.

W. J. HYLAND MFG. Co., Springfield, Mass. (Power Show). Bashlin valves and faucets. Representatives, Wm. J. Hyland and Charles A. Southwick.

INTERNATIONAL ENGINEERING WORKS, LTD., Boston (Power Show). Macdonald shaking grate and boiler accessories.

JEFFERSON UNION Co., Lexington, Mass. (Power Show). Unions and flanges.

JENKINS BROS., Boston (Power Show). Line of valves, both iron and brass body.

KEASBEY & MATTISON Co., Ambler, Pa. (Power Show). Samples of asbestos shingles, building lumber and corrugated sheathing; magnesia pipe covering, air cell coverings, magnesia and asbestos cements, etc., used for insulating. Mr. Davies, Mr. Buchanan and Mr. Bolster were in attendance.

WILLIAM KENYON & SONS, LTD., Manchester, Eng. (Power Show). Cotton transmission rope.

KEYSTONE LUBRICATING Co., Philadelphia (Power Show). Grease in different densities for textile purposes. Especially adapted for S. K. F. ball bearing. L. A. Webster, New England manager, and H. J. Cass, J. F. Scanlon, A. W. Lawrence and George E. Stafford in attendance.

LEAD LINED IRON PIPE Co., Wakefield, Mass. (Power Show). Lead lined iron pipes and tin lined pipes.

LOCKE REGULATOR MACHINE Co., Salem, Mass. (Power Show). Damper regulators and engine stops.

LUNKENHEIMER Co., Boston (Power Show). A comprehensive display was given of the various Lunkenheimer quality products, including brass, globe, gate and swing check valves; iron body globe and gate valves; semi-steel globe and gate valves; cast steel globe and gate valves; automatic non-return boiler stop valves; blow off valves; oil pumps; oil cups; grease cups; whistles; relief valves. They showed for the first time their automatic non-return boiler stop valve which contains many new features. The following representatives were in charge of the exhibit: W. W. Beal, manager; C. E. Allen, and A. O. Hurxthal.

MASON REGULATOR Co., Boston (Power Show). Pressure regulating devices designed for the automatic control of steam, air and water pressure were shown, in particular the damper regulator and the lever style differential reducing valve. F. A. Morrison, sales manager, was in charge.

MCLEOD & HENRY Co., Troy, N. Y. (Power Show). Manufacturers interested in economy of plant operation found this display in the Power Show of unusual interest. Resetting boiler furnace linings is no small matter, especially if it means a shutdown, and occurs with great regularity. Brick or blocks of better material can be installed at the minimum labor cost, it was explained, and need to be repaired less often, more than compensating for the higher first cost of material. "Steel Mixture" fire brick for boiler settings were shown with a model showing the method of construction. A. W. Pettie, New England representative, was in charge. The Foote's back arch is a patented product of "Steel Mixture," and will last as long as the boiler in which it is installed.

NASHUA MACHINE Co., Boston (Power Show). Showed their steam traps as applied for return, vacuum, tilting pump, and separating trap.

NELSON BLOWER & FURNACE Co., Boston (Power Show). Stokers and blowers.

NIGHTINGALE & CHILDS Co., Boston (Power Show). Magnesia and asbestos products and engineering specialties.

OPEN COIL HEATER & PURIFIER Co., Indianapolis and Boston (Power Show). Stickle feed water heaters, steam and oil separators, steam traps and special valve for taking water and air out of drying and heating systems.

PATERSON LUBRICATING Co., Boston (Power Show). Boiler room specialties, strainers, boiler tube cleaners and cutters, automatic boiler stop valves.

PENNSYLVANIA WIRE GLASS Co., Philadelphia (Power Show). Skylight glass.

PHILADELPHIA GREASE MFG. Co., Philadelphia, Pa. (Power Show). Display of lubricating greases and grease cups. Harry M. Colby, New England manager; Horace A. Smith, secretary; Jas. J. Fitzpatrick and H. B. Heath in attendance.

THE POLAR MANUFACTURING Co., Boston (Power Show), exhibited a line of white porcelain instantaneous water purifiers and coolers.

PRATT & CADY Co., INC., Boston (Power Show). Brass and iron valves and asbestos packed blow-off cocks; steel union and vacuum heatng specialties. W. D. Cashin in charge.

RICHARDSON-PHENIX Co., Boston (Power Show). Lubrication appliances, filters and valves.

WM. C. ROBINSON & SON Co., Boston (Power Show). Lubricating oils and greases. Messrs Lovejoy and Payson in attendance.

ROTO Co., Hartford, Conn. (Power Show). Roto tube cleaners.

THE SCHAEFFER & BUDENBERG MFG. Co., Brooklyn, N. Y. (Power Show). Indicating and recording instruments, such as pressure and draft gauges, thermometers of any description, tachometers and other speed devices. C. E. Georgi, secretary, in charge.

SHAW PROPELLER Co., Boston (Power Show). Wrenches.

THE SIMPLEX TESTER Co., Cambridge, Mass. (Power Show). Portable dead weight pressure gauge tester. A. W. Blair in charge of exhibit.

SPAR LIGHT Co., Boston (Power Show). Preparation for polishing glass.

SPRAY ENGINEERING Co., Boston (Power Show). A unique exhibit was provided by this company of which the principal features were a miniature "Spraco" cooling system and a "Spraco" air washer in actual operation. The cooling system consisted of a shallow pond made in imitation of concrete with a single group of five spray nozzles operated by means of a motor driven pump so as to reproduce the actual appearance in a very realistic manner. The pond was approximately one-sixth of the actual size of a regular installation for cooling circulating water for condensers, gas engine jacket, ammonia condensers, transformers, and other equipment. The air washing and cooling equipment consisted of a miniature "Spraco" air washer complete in every respect like the standard air washers and coolers manufactured by this company in all sizes from 2,000 to 100,000 cubic feet per minute capacity. There were also spray nozzles, etc. William F. Figee, was in charge. Copies of a new booklet showing companies using these products were distributed.

W. O. TALCOTT, Providence, R. I. (Power Show). Belt fasteners and sample belt joints.

TILLOTSON HUMIDIFIER Co., Providence, R. I. (Power Show). Steam specialties and dabbing motion for Noble combs.

UEHLING INSTRUMENT Co., New York (Power Show). Instruments and apparatus automatically to indicate, measure and record in power plants.

UNITED STATES GRAPHITE Co., Saginaw, Mich. (Power Show). Graphite lubricants, paint, boiler graphites, etc.

WADSWORTH, HOWLAND & Co., INC., Boston. Factory and mill paints and machinery enamel.

WALWORTH MFG. Co., Boston (Power Show). Materials descriptive of the piping line, including valves, fittings, tools and power plant piping. A line of

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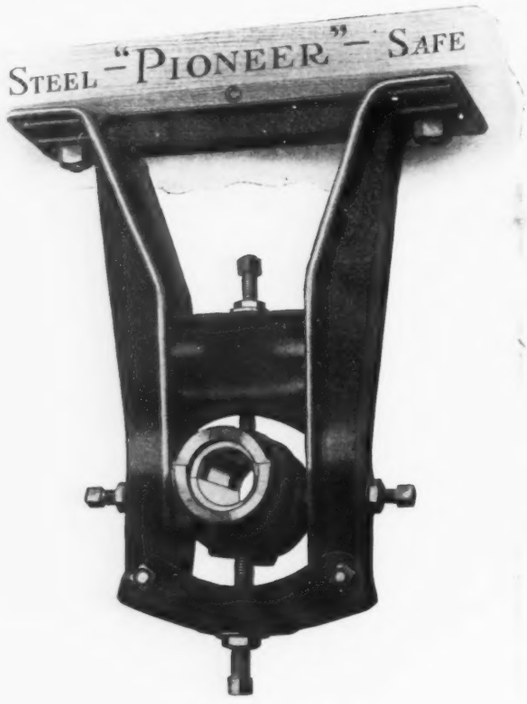

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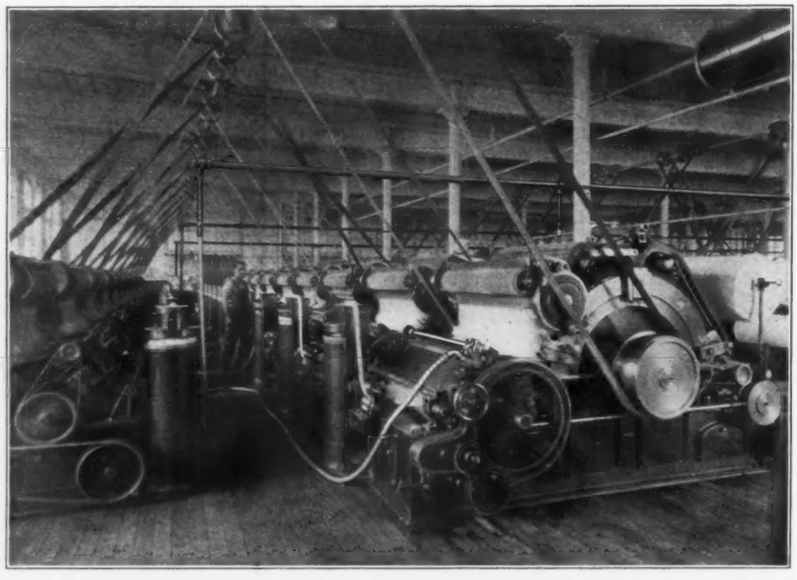

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hydraulic steel fittings and a display board showing results of new heat treatment by means of wrenches which had been bent while cold, was exhibited, which had not been shown before. D. Tarshes of the power piping department was in charge of the exhibit during the week, with H. C. Bell and Peter C. Deluca.

Warren Webster & Co., Camden, N. J. (Power Show). Webster-Lea Heater-Meter and heating specialties. Represented by Messrs. Snow, Tilden, Bilyeu and Jay.

Watkins Engineering Supply Co., Boston (Power Show). Power transmission equipment.

John Whalen Co. (Power Show). Belmont Packing & Rubber Co.

Mulconroy Co. (Power Show). Packings and hose.

L. J. Wing Manufacturing Co., New York (Power Show). Included in this exhibit was a Wing "RE" turbine mechanical draft blower equipped with an approved lubricating system which automatically filters the oil used in the bearings and provides a very generous reservoir space. Another leading feature was the Wing screw propeller fan for ventilating purposes. The blades of this fan are cast in one piece of aluminum. They are designed to operate at high speeds and due to the fact that the blade is a screw propeller in the true sense of the name operated at these high speeds very quietly. These features give a fan of small dimensions which will discharge extremely high volumes of air against comparatively heavy resistances. The Wing disc fan with reversible and renewable blades was exhibited together with an electrically driven slow speed power saving cotton exhauster. Altogether there were seven fans and blowers in operation continuously.

Yarnall-Waring Co., Philadelphia (Power Show). Webster-Lea heater-meter, a combination of feed water heater with V-notch Weir meter so arranged that either unit may be operated in combination or independently. E. G. Jay, Jr., in charge, with N. J. Hibbard.

TESTING REQUIREMENTS

(*Continued from page* 109.)

So far as the tire fabric is concerned, since both makers and users have, in this country at least, been long accustomed to this condition, and possess a large collection of data based upon this test, it seems unlikely that it will be changed. It should be said in passing, however, that quite a number of experimenters, both among the producers and consumers, have discovered what appears to be a fairly definite law of relative strength of the tire fabric, which is in the proportion of approxmately 7 per cent. increased strength for each 1 per cent. increase of moisture content, reckoned from the bone dry state up to a certain percentage not yet very well established. That is to say, if a strip of tire fabric of the standard twenty-three by twenty-three make, whether made of Egyptian or Sea Island combed or carded cotton, broke at say two hundred pounds in the bone dry state, it would on the average break at about:

242 pounds at 3 per cent.
270 " " 5 "
298 " " 7 "
312 " " 8 "

This is certainly very important, if proved to be correct. Unfortunately, the data so far obtainable are said to be not free enough from uncertainty as to other affecting conditions to permit some of their sponsors to admit the apparent law to be anything more than highly suggestive.

As relating to other fabrics, this law is subject, at present, to further limitation in its use as to the apparent rate of change in strength, which seems to be as widely different as the fabrics themselves are different in structure. This may, however, be considered more apparent than real when it is understood how little close study has been given to the different elements underlying the probem.

The determination of strength tests at this standard bone dry state for tire fabrics is not only convenient, but entirely rational from the point of view of use, and it would seem as obviously irrational, however convenient, to apply this test to the majority of other kinds of fabrics; yet there are observers who would prefer to do so.

For those who do not, it becomes all the more of vital importance in comparing strength tests at different times by different observers of supposed identical materials, that the moisture content should be known, and be as nearly as possible the same, and that the approximate effect of any difference should be a matter of close attention, with its limitations as far as practicable determined.

A method of approximating to a known condition is in use by the Bureau of Standards, and the Manchester Chamber of Commerce Conditioning House, as well as in several manufacturing establishments in this country. This primarily rests upon the use of a standard atmospheric condition, generally given as 70 degrees Fahrenheit temperature and 65 per cent. relative humidity. In this the samples to be tested remain exposed together for as long a time as convenient, say several hours at least, and the strength tests, as well as other kinds of tests, are then conducted at as near these conditions as possible.

This method is good, but under some circumstances is far from being a positive index of the moisture content of the several samples submitted, so that without frequent check tests by a proper conditioning oven, it cannot be considered entirely acceptable. It should be remembered that the element of time lag is very uncertain and irregular, from a variety of causes.

The question of whether or not the so-called standard of 8½ per cent. for commercial transactions in cotton should be selected for testing both yarns and all ordinary cotton fabrics is perhaps debatable, since it is claimed that though yarns generally, and baled cotton almost always, equal or exceed this condition, yet the majority of pure cotton fabrics in our climate have seldom had the proper opportunity of reaching this condition before shipment.

For testing purposes, however, on any of these materials, this condition can be readily obtained, or allowed for, with a close degree of approximation; and would then conform to the generally accepted commercial standard used abroad, and which is coming to be more and more acceptable in this country as it becomes better understood by both users and producers of all kinds of cotton materials, as a standard by which to buy and sell.

This is the condition called for in the tentative tests described for automobile tire fabric measurements by Committee D-13, and which has remained practically unchallenged by either users or producers.

Its formal sanction for all commercial and ordinary testing requirements by this Association would be, in the opinion of many, an epoch making advance.*

* Editor's Note.—All of the tests referred to by Mr. Hartshorne and that are published as appendices to his paper have been previously published by Textile World Journal, wholly or in part, with the exception of the tests on cotton duck made by John Lind and E. D. Walen.

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Theory and Practice in Cotton Mill Lighting

By Ward Harrison, Cleveland, Ohio

Several papers are already on file in the proceedings of this association, in which are given detailed recommendations for the illumination of a cotton mill. The purpose of the present paper is not simply to review these recommendations, but rather to compare the theories advanced with the practice which is being followed to-day in the majority of mills.

In many cases in the operation of a plant where changes and so-called reforms have been made, in the lighting or otherwise, and such changes have not after thorough trial met with the general approval of the employes it has been customary to set down this lack of approval simply as ignorance or prejudice and let it go at that. In more of these cases, however, it might be wise for those who are initiating the change to look back once more to fundamentals and see if after all the innovation does not lack in some of the merits which its predecessor possessed. With this in mind, the writer recently visited a number of mills in New England to determine wherein the lighting of these mills followed modern theory, where it differed and, if possible, a reason for the differences.

First, in the more important processes, such as weaving and spinning, it seems that greater attention should be given to the problem of daylight illumination. In the majority of plants the machines are placed lengthwise of the building, thus concentrating the bulk of the light at the outside rows, whereas in the relatively fewer number of mills, where all machines are arranged crosswise not only is illumination more uniform, but the operatives do not have to work so much in their own light. The need for artificial illumination is reduced and better work is accomplished.

In artificial lighting also theory requires that the lighting be placed in the center of the working aisles or alleys. In practice this principle is almost universally followed and we may safely assume it to be correct, the more because it meets with the general approval of the operatives.

Next comes a question as to the location of lamps along the alley, and practice is almost equally divided between a location opposite the center of the machines to be lighted and midway between the pairs, in which case the light is thrown diagonally rather than directly upon the work.

This latter method is preferable in theory, for it renders less troublesome the shadow cast by the operator upon his work at times when illumination is most needed, and no objections to the improvement have been encountered where modern equipment is used.

For looms of large size a lamp is ordinarily required between each pair, while for those of 52 inches or less every second lamp may often be omitted. Obviously the size of lamp needed will vary with the spacing of units and the class of goods manufactured.

Up to this point no serious disagreement exists as to the proper method of lighting, but when the subject of reflectors is mentioned, differences of opinion appear instantly. Early practice, of course, called for no reflector at all or at best a flat disk not more than six inches in diameter, but when the subject of illumination began to receive scientific study and especially after the metallic filament lamp became available, engineers began to specify deep bowl, reflectors of opaque material, which directed a powerful light on the work and not toward the eyes of the workers. Thousands of such reflectors were installed with apparently good results and by many the problem was considered solved. Strangely enough, however, a considerable proportion of the operatives liked the old way better and still do; without doubt it is their attitude which has retarded the replacement of a larger proportion of the old units with more efficient and economical equipment. Workers in the textile industry are not alone in this position, and it was with the thought in mind that there must be some foundation in fact for this attitude on the part of the employes, that the writer some time ago attempted a careful analysis of various types of reflecting equipment. It soon became evident that although a high and uniform intensity on a horizontal plane may readily be obtained by the use of bowl-shaped metal reflectors, the intensity on oblique or vertical surfaces is often deficient at many points, especially when these surfaces are not so situated as to be illuminated by the nearest lamp.

Those who really prefer the steel will find some different shape from the heretofore discussed to be quite worthy of their consideration. I have reference to the so-called dome type, in which the depth is but little more than sufficient to bring the bottom of the reflector level with the bottom of the lamp, and the diameter is from three to four times the depth. The absence of multiple reflection in such a shade keeps the absorption low, so that on an average an installation of dome reflectors will give twenty per cent. higher intensity of illumination on a horizontal than will those of the bowl type when equipped with lamps of equal power. In addition, the illumination on vertical working surfaces and on the side walls is very much better when the dome type is employed. Dome reflectors have been installed in many instances where bowl-shaped units were not acceptable. Such installations have proven uniformly satisfactory where the mounting height for a 60-watt vacuum lamp is not less than 8½ feet above the floor. Such reflectors cannot be recommended, however, for the new carbon filament lamp.

Considerable space has been devoted to the choice of reflectors, because this factor determines most of the principles of lighting involved. With a single exception this is the most important question in cotton mill lighting to-day. Upon it rests the decision as to whether or not the old and obsolete equipment can be superseded without error and without dissatisfaction. The one subject of even greater importance than the foregoing, namely, that of maintenance of a system for cleaning the units at regular intervals, applies to all installations alike, good, bad and indifferent. In far too many plants no provision at all is made for periodic cleaning of lighting fixtures, although the windows are regularly washed; in these mills where thousands of dollars are being spent annually on lighting, it may be estimated that 30 per cent. is never being received at all because of the collection of dust and dirt on the units. One man with a low stool could clean a surprising number of lamps and reflectors in an hour. Truly it might be said that such a one could make a lot of money, for many 60-watt lamps to-day give less light than would a clean 40-watt. A periodic cleaning or whitening of the walls also contributes much to the satisfactoriness of the lighting, both by day and by night.

Comparative Tests on Amount of Moisture in Cotton

By Robert E. Naumburg, New York City, Brookline, Mass.

THESE tests were performed at the request of Mr. F. J. Hoxie, of the Factory Mutual Fire Insurance Co. Realizing the need of more complete knowledge of the factors affecting the amount of moisture in cotton, he asked the co-operation of the Massachusetts Institute of Technology and Mr. Naumburg performed these tests as his graduation thesis.

OBJECT OF THE TESTS

The object of this investigation is to determine what factors affect the amount of moisture contained in cotton as it comes from the bale.

Tests were made to determine the effect on the hygroscopic properties of cotton, caused by

1. Differences in seed.
2. Locality and conditions of growth.
3. Impurities.
4. Length of staple.
5. Exposure to the atmosphere.

SAMPLES OF COTTON TESTED

A-1. Clarkville, Texas, middling.
A-2. Carolina, $1^1/_{16}$ inches staple.
A-3. Arkansas $1^1/_8$ inches staple.
A-4. Mississippi, long staple.
A-5. Mississippi, short staple.
A-6. Oklahoma, low grade, "bolly."
B-1. American, partially exposed for one year, in wrapping paper open at the ends.
B-2. American, completely exposed for one year.
S-1. Genuine Sea Island.
S-2. Georgia Sea Island.
Eg. Egyptian, medium grade.
Ind. Indian.

All the samples tested were taken directly from the bale or had been kept in moist store-rooms, with the exception of B-1 and B-2 which were purposely exposed, and the Egyptian cotton. This sample had been sent by mail from Egypt in a small package open at the ends. Each of the samples A-2, 3, 4, 5, and 6 was a mixture of cotton from half a dozen bales. All of the samples were tied up equally tight, with the exception of the Indian cotton, which had evidently been subjected to great pressure in packing. This sample was more compact than the others.

R. E. NAUMBURG

any errors that may have occurred, have affected all the readings equally, and the value of the results, for comparative purposes, will not be seriously impaired.

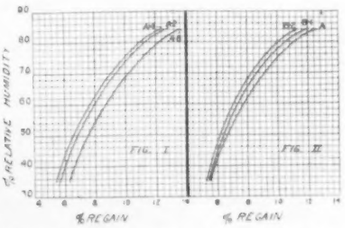
EXPLANATION OF DIAGRAMS

In Fig. 1, the curves A-1 (Texas) A-3 (Arkansas), and A-5 (Mississippi short staple) would fall between the curves A-2 (Carolina) and A-4 (Mississippi long staple), but they have been omitted for the sake of clearness. The curves of these five samples are similar and the length of staple exerts no appreciable influence on the amount of moisture contained. In sharp contrast, however, is the curve of A-6 (Oklahoma, low grade, impure cotton) which contains decidedly more moisture at all humidities.

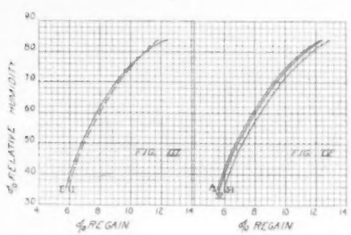
Fig. II shows the effect of exposure to the atmosphere. B-2, the sample which has been completely exposed, contains less moisture than B-1, which was only partially exposed, and B-1 contains less moisture than A, which is the average of A-1, 2, 3, 4, and 5.

Fig. III shows the curve of medium grade Egyptian cotton, which is very similar to that of the average American in Fig. II. The curve of Indian cotton is unusually steep. In other words, it did not give up as much moisture as the others at the lower humidities, or take on as much as the others at the higher humidities. As I have previously stated, this sample was wrapped up more tightly than the rest. This may have prevented complete penetration to the center of the sample tested, and would account for the steepness of the curve. I have used a dotted line to indicate that these values are in doubt.

Fig. IV shows that S-1 (genuine Sea Island), contains more moisture than



S-2 (Georgia Sea Island), and that the latter is very similar to the average American cotton. From this we may draw the conclusion that it is not the difference in seed, so much as the climatic conditions during growth which affect the hygroscopic properties. In



other words, the determining factor is environment rather than heredity.

SUMMARY OF RESULTS

The presence of impurities increased the amount of moisture in the cotton tested.

Prolonged exposure to the atmosphere decreased the quantity of moisture contained.

Locality and conditions of growth influenced the hygroscopic properties to some extent.

Differences in seed and length of staple had no appreciable effect on the amount of moisture contained.

TESTS

Weight of Cotton in Grains for Different Relative Humidities

Sample.	Dry.	35%	41%	50%	57%	67%	69%	73%	84%
A-1,	535.5	565.0	567.0	571.5	575.0	583.0	584.5	587.5	602.5
A-2,	456.0	482.0	484.0	488.0	489.5	496.5	498.5	500.0	513.0
A-3,	566.0	598.0	600.5	604.5	609.5	—	618.5	621.0	635.5
A-4,	387.5	408.5	410.5	412.5	416.5	—	422.5	424.5	435.5
A-5,	535.5	565.5	568.0	571.5	576.5	—	585.5	587.5	602.0
A-6,	539.5	573.5	575.5	580.5	584.5	—	594.0	598.0	613.5
B-1,	540.0	569.5	571.5	575.0	578.0	585.5	587.5	589.5	605.0
B-2,	544.0	572.5	574.5	578.0	582.0	—	590.5	591.5	606.0
S-1,	548.0	580.5	582.5	587.0	591.0	597.0	599.5	603.0	618.5
S-2,	543.0	574.0	576.5	580.5	583.5	—	593.5	596.5	610.0
Eg.,	511.0	540.5	542.5	546.0	548.0	556.5	558.5	561.0	574.5
Ind.,	742.0	786.0	789.0	794.0	800.0	808.5	809.5	814.5	830.5

RESULTS OF TESTS

Per Cent. Moisture of Various Humidities

Sample.	35%	41%	50%	57%	67%	69%	73%	84%
A-1,	5.22	5.57	6.30	6.87	8.15	8.38	8.95	11.12
A-2,	5.40	5.78	6.56	6.85	8.15	8.55	8.81	11.10
A-3,	5.36	5.74	6.38	7.14	—	8.49	8.85	10.96
A-4,	5.14	5.62	6.07	6.74	—	8.30	8.73	11.04
A-5,	5.30	5.73	6.30	7.11	—	8.55	8.85	11.04
A-6,	5.94	6.26	7.07	7.70	—	9.17	9.78	12.08
B-1,	5.18	5.50	6.09	6.56	7.78	8.10	8.41	10.80
B-2,	4.97	5.34	5.88	6.53	—	7.88	8.04	10.31
S-1,	5.61	5.94	6.64	7.28	8.21	8.58	9.14	11.42
S-2,	5.41	5.83	6.45	6.94	—	8.53	8.96	10.98
Eg.,	5.46	5.82	6.40	6.75	8.18	8.51	8.90	11.05
Ind.,	5.60	5.96	6.54	7.25	8.23	8.34	8.90	10.68

Per Cent. Regain at Various Humidities

Sample.	35%	41%	50%	57%	67%	69%	73%	84%
A-1,	5.51	5.88	6.72	7.38	8.87	9.15	9.72	12.51
A-2,	5.70	6.14	7.02	7.35	8.88	9.32	9.65	12.53
A-3,	5.65	6.10	6.80	7.69	—	9.28	9.72	12.28
A-4,	5.42	5.94	6.45	7.23	—	9.03	9.55	12.39
A-5,	5.60	6.07	6.72	7.66	—	9.34	9.71	12.42
A-6,	6.30	6.67	7.60	8.34	—	10.10	10.84	13.72
B-1,	5.46	5.83	6.48	7.04	8.43	8.80	9.17	12.04
B-2,	5.24	5.61	6.25	6.99	—	8.55	8.73	11.40
S-1,	5.93	6.30	7.12	7.85	8.94	9.40	10.04	12.86
S-2,	5.70	6.17	6.91	7.46	—	9.30	9.85	12.34
Eg.,	5.77	6.16	6.85	7.24	8.90	9.30	9.78	12.43
Ind.,	5.93	6.33	7.01	7.82	8.96	9.10	9.77	11.93

PRECISION OF THE TESTS

As the title of this investigation indicates, these tests were essentially *comparative*. The apparatus at hand did not permit any very close regulation or observation of the humidity; but by testing a dozen samples under the same conditions, by the same observer using the same instruments, it is probable that

TRILOGY OF DEMOCRACY

(*Continued from page 66*)

1787, the need is more dire, the task is easier, the issue no less certain.

The larger English Nation which could be so created would do for its units what the United States has done on this continent. It would bring the "Federation of the World" within the realm of probabilities.

Prepare for war? Yes, we must,

But are we great enough at the same time to plead for peace? Are we strong enough to lead in the movement which must ultimately unite the English-speaking states of the world, if the glorious Anglo-Saxon tradition is to survive, if democracy and not the doctrine of sovereignty is to prevail?

If we essay the part of Prometheus the Fire-Bearer, let us not too much doubt the potency of our example. Our brothers in Europe may be blind and deaf and mad, as we once were, as we may be again. But there is a great sadness in their hearts and a great hope. They are waiting, as the world was waiting nineteen hundred years ago. They expect deliverance. They cannot deliver themselves. Sovereignty holds them bound and helpless. The vultures of war still tear at their vitals.

Therefore as we prepare to defend ourselves let us also speak to them. And as we speak let us pray: That even as the Spirit of God moved upon the face of the waters, when the earth was without form and void and said: Let there be Light and there was Light—so may our united voices, charged with Sympathy and the spirit of Human Brotherhood creatively penetrate the horror that hangs over Europe, and carry to those who are now in darkness the great Light that first came to us one hundred and twenty-seven years ago.

Exhibit Functions

There were a number of functions in connection with the machinery show, but the one that the Textile Exhibitors' Association provided for 25 girls at the Hotel Lenox, Thursday morning, was one of the most delightful affairs of the week. Every girl connected with the exhibition was invited to breakfast and a motor trip through the Boston park system. The temptation to sleep was too strong for many of the girls, and only 25 appeared, but they had an enjoyable time, judging by the expressions of delight.

The breakfast at the Lenox began at eight o'clock. It was a delightfully informal affair, and at the conclusion Manager Chester I. Campbell made a very gracious speech, expressing his pleasure of being present with the girls, who had contributed to the success of the exhibition, and the hope that they would enjoy their stay in Boston.

When breakfast was over, the girls climbed into a half-dozen touring cars that were awaiting them, and were whirled through the park system of the city. A stop was made at the new Evans Memorial Hall in the Fens, and a group picture was taken. The party arrived at Mechanics Building a few minutes before the opening of the show.

Cabaret and Smoker

Everyone connected with the machinery show was invited to attend a complimentary smoker in Talbot Hall, one of the upper halls in Mechanics Building on Thursday evening, and a large number accepted the invitation. The function was arranged by the Textile Exhibitors Association and is looked forward to by the exhibitors and their assistants.

Mr. Campbell opened the festivities with a short speech in which he told of the wonderful co-operation that he had received from the exhibitors, and this, he declared, was responsible more than anything else, for the extraordinary success that had come to the Fifth National Textile Exposition. Vaudeville performers playing in Boston provided the entertainment and were complimented with many encores. It was after midnight when the crowd dispersed.

Members Elected

The following active members were elected: Spencer Borden, Jr., Fall River, Mass.; Salvador R. Da Gama, Rio de Janeiro, Brazil; Nathan Durfee, Fall River, Mass.; John D. Eddy, Fall River: Robert F. Herrick, Boston; Samuel E. Kirkland, Norwich, Conn.; James E. Osborn, Fall River; Sidney S. Paine, Pawtucket, R. I.; H. Stewart Redman, Manchester, N. H.; Charles N. Robertson, Jr., Lonsdale, R. I.; Elwin H. Rooney, Kankakee, Ill.; Albert G. Thatcher, Philadelphia; Charles S. Wentworth, Newmarket, N. H.; William H. Wills, Canton, Mass.; Ambrose E. Crippen, Adams, Mass. The following associate members were elected: Gustav William Gorner, Boston; William A. Lamson, Lowell, Mass.; Herbert Midgley, Worcester, Mass.; Joseph St. Mary, New Orleans, La.

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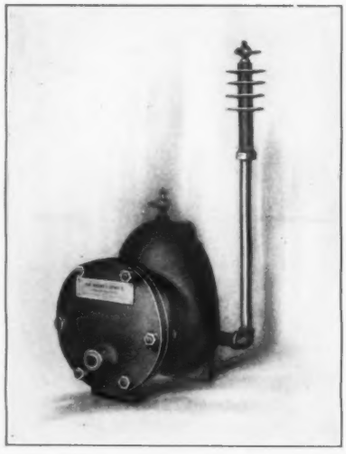

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Manager Campbell Enthusiastic Over Results

"IN order to express the success of the exposition now drawing to a close, I will have to reach for superlatives," said Mr. Campbell to a representative of the TEXTILE WORLD JOURNAL on Thursday.

"It is to be expected that I would enthuse but I must say that I have genuine reasons for doing so. The greatest crowd of vitally interested persons that ever attended an institution of this kind passed through the doors of Mechanics Building during the past few days and I have it from all sides that the exhibitors are delighted with the results that will come to them.

"It was a wonderful show no matter at what angle one might view it. It was by far the most representative exhibition that the Textile Exhibitors' Association, Inc., have conducted under their auspices. The woolen and knit goods men were more largely represented than in former years and there were many new concerns in the Show for the first time.

"I honestly believe that this biennial exposition is but in its infancy. It is going to grow until it reaches out and includes every branch of this vast field of activity. This was demonstrated during the past few days.

"Two years from now the list of exhibitors will be largely increased. The cotton machinery manufacturers will come in stronger, there will be many, many more knit goods and woolen machinery manufacturers represented and unless I am entirely wrong the silk man will seize upon the opportunity. The unnatural condition that exists today with the dyer, the bleacher, mercerizer and finisher kept many of them from having exhibits but I feel confident that they will come in the future.

"During my career as a director of industrial exhibitions I have had many different types of manufacturers to do business with but never in my experience have I had such co-operation as the exhibitors of the present exposition gave to me in handling the affairs of the Show. Every one pulled together for the success that came.

"Naturally the exposition was even more educational than in past years. This was, of course, due to the greater variety of exhibits. The mill owners and officials no doubt fully appreciated this as it gave them the chance to look over carefully every machine that adds to the economy and safety of their plant. On the other hand the exhibitors received their full measure as they had a chance to come into personal contact with thousands of men interested in their lines. While I have no way of compiling the direct results, yet I have been informed that already many of the exhibitors have reaped a rich reward in sales and also have on their books a fine list of prospects.

"The exposition was attended by many thousand school children who were invited to come as the guests of the association. They were chaperoned by their teachers and no doubt it has stimulated many young minds to plan for such equipment as would fit them for a career in the textile industry. We have had many thousands of laymen who came to watch the wheels go 'round. They apparently were delighted with the educational features of the exhibits and went forth to spread the propaganda of the wonderful things that the men and women in this industry are accomplishing."

President Bishop Thanks Exhibitors

AT the request of the TEXTILE WORLD JOURNAL, President Frederick H. Bishop dictated a statement on the Textile Show at Boston, as follows:

"At the termination of the Fifth Exhibition given by the Textile Exhibitors' Association, it is a great pleasure to be able to state that, in the interest and the number of new and meritorious machines and appliances, the exhibition stands out as being in nearly all respects a great improvement over any preceding exhibition. The Association returns sincere thanks to all the exhibitors for the very admirable way in which they have co-operated in arranging their various exhibits and in the systematic presentation they have made, not only to prospective customers, but to the general public, which has shown unusual interest this year in the exhibition as a whole.

"Previous to the opening of the exhibition, the question was raised in regard to the probability of a sufficient number of new and interesting processes being presented to make it interesting and profitable. We have been agreeably surprised at the progress made in textile manufacture during the last two years, which has fully justified the holding of the exhibition at this time. The growing interest shown in this method of presenting in practical form to the manufacturers the newest and best in machinery and appliances has been exemplified by the fact that several firms who have not previously exhibited have expressed a desire to have their applications filed at once for space in the next exhibition.

"Plans are already outlined for the next exhibition, and, as these are based on the experience gained, they will be broader in their scope, and will embody features which will tend to round out the exhibition and embrace practically every branch of the textile industry."

Convention Notes

ALTHOUGH propitious weather might have increased the attendance at this week's convention of the National Association of Cotton Manufacturers, the conditions were almost ideal in other respects, and the officials and committees may well feel proud of the success of the meetings and banquet.

The innovation of holding the convention sessions at the Copley-Plaza, and not in one of the halls of the Mechanics Building, proved most satisfactory to all concerned. It obviated the necessity of stopping machinery at the exhibition during convention hours, and prevented friction of any kind between the convention and the exhibition. What is more, the attendance at the convention sessions was larger than usual, but whether this was due to the divorce mentioned, or to the combination of these two attractions, it is impossible to say.

It was one of the best attended annual meetings that has ever been held by the Association, but it is difficult, if not impossible, to estimate the actual number who attended the various sessions and the banquet, and who were also present in the lobby of the Copley-Plaza while these functions were in progress. At the banquet, the attendance of members and guests was close to 400, and at least 250 attended the opening session Wednesday morning. The latter is probably a record attendance at a regular session, and is far in excess of the number who ever attended any of the sessions when they were held in Huntington Hall or at the place of meeting in the old Tremont Building.

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Gold Medal Awards, Ghent, 1913; San Francisco, 1915

Numerous comparisons were made between the present convention and those of former years, that were invariably laudatory of the change that has been made. When the meetings were held at Huntington Hall, the only comfortable opportunity that members and guests had to enjoy a social hour or so with friends was by meeting them at the hotels about town. Those who have crowded the narrow entrance hall of the Rogers Building in former years, or hung on to the steep stairways leading to Huntington Hall in efforts to have a few minutes' conversation with friends, were able to take solid comfort in the facilities afforded by the Copley-Plaza lobby. In those old days it was a common thing for numerous mill agents and superintendents to register their names and never attend a convention session. Similar instances were rare at this year's convention and at the annual meeting held last year at the Copley-Plaza.

Another innovation that tended to make the meetings more enjoyable to a very considerable number of attendants was the announcement that smoking would be allowed. In a room so large this did not give offense to non-smokers and was greatly appreciated by lovers of the weed. This liberal policy if continued might in time make the regular sessions as popular as are the informal gatherings outside of the convention hall.

What these changes really mean to association members and guests can only be appreciated by those who have been regular attendants for a number of years; perhaps they do not look important on paper, but if former President Duncan had accomplished nothing else during the two years of his presidency it would have been sufficient to make his administration one of the most notable in the history of the organization. As an actual fact these are only a few of the least important innovations that have been introduced by him; the reading of papers by abstract and the holding of a banquet in connection with the spring meeting were also inaugurated by him. The latter functions made it possible to secure as speakers men of national prominence, and never before have so many men of this calibre appeared before the association.

It is unusual for a man of such national prominence as President Frank A. Vanderlip, of the National City Bank, to appear as a speaker at one of the regular convention sessions. It was not strange that a number of members should have expected to hear him speak at the banquet and have thus missed his address at the morning session on Wednesday. It may be stated in explanation that this place on the program was given to Mr. Vanderlip at his own suggestion, and although he did not address as large an audience as appeared at the banquet, it is quite possible that he spoke to a larger number of attentive hearers. It may be stated in this connection that there were one or more speakers at each of the regular sessions who ought to have impelled a very much larger attendance, and who did attract a very much larger attendance than usual. This is another one of the innovations introduced by former President Duncan that has tended to increase interest in the regular meetings.

Probably few members of the association who have not been honored by election to the presidency, have any conception of the strenuous exactions of this office. Not only does it call for the sacrifice of a large amount of time, but now that the National Association has been given national recognition by the government departments, by other national bodies and by the promoters of various movements of national scope, many calls are made upon the president to co-operate with them, to deliver addresses and to engage in conferences that require much work in preparation and a considerable amount of time in traveling, to say nothing of the expenses which must be paid by the recipient of these honors. We have never heard a president of the association complain of the latter exactions, but it is a serious reflection upon the organization that their officials should be allowed to pay for association expenses out of their own pockets. The dues paid by national association members are pitifully small as compared with those of other organizations of a similar caliber, and it must be apparent to any thinking man that some method must be found to defray increasing expenses if the organization is to continue to play an important part in national matters.

William M. Butler who, as senior vice-president, was in direct line for the presidency informed the nominating committee that pressure of business affairs would make it impossible for him to accept this honor. Mr. Butler not only has large cotton mill interests in addition to his large law practise, but also takes a prominent part in politics. In the opinion of large numbers of members he is eminently qualified for the position, particularly in view of the broadening activities of the organization.

Albert Farwell Bemis, as chairman of the Board of Directors, was next in line to Mr. Butler for the presidency, and his election is a proper recognition of his numerous activities in association work and the prominent position that he holds in the industry. Mr. Bemis was graduated from the Massachusetts Institute of Technology and is a trustee of that institution. He is president of the Bemis Bros. Bag Co., who operate several textile mills and are the largest manufacturers of bags in the world. He has been a member of the association since 1903 and has always taken an active interest in association work, having been a member of several important committees and a director since 1910.

W. Frank Shove, who becomes senior vice-president, is a well-known Fall River manufacturer, and should he be advanced to the presidency in due course of time he would be the first Fall River manufacturer who has ever held that office. Russell B. Lowe, who is also elected a vice-president, is president of the Parkhill Manufacturing Co., Fitchburg, Mass., and the son of Arthur H. Lowe, who is the only man who has ever held the presidency of both this association and the American Cotton Manufacturers Association.

The new directors, Philip Y. DeNormandie, Herbert Lyman and John E. Rousmaniere are all textile mill treasurers, and it is a rather interesting fact that eight members of the new Board of Government are mill officials, while only four are agents; this gives the former a larger majority than ever before, and it was only a few years ago that the proportion of agents and superintendents to mill officials was exactly reversed.

None of the new directors have been active in association work, but their prominent position in the industry is a guarantee of their ability. Mr. DeNormandie is a member of the dry goods commission firm of Bliss, Fabyan & Co., and is an officer or director in several of the mills controlled by this firm; he has been a member of the association since 1896. Mr. Lyman is treasurer of the Merrimack Manufacturing Co., and his identification with the association dates from 1895. Mr. Rousmaniere is one of the youngest members of the organization and one of the youngest of the textile mill treasurers. He is treasurer of the International Cotton Mills and became an association member in 1911.

Charles H. Fish, treasurer and acting secretary of the organization, is too well known as a member and official of the association to need a biographical sketch of his many valuable activities in association work to prove how well fitted he is for the position of permanent secretary. No one is better qualified than he to perform the arduous duties of the secretary's office, but it is extremely doubtful whether he would care to make these sacrifices, or could find sufficient time from his work as a consulting engineer, to perform the secretary's duties. It is possible that he can be prevailed upon to accept the position and direct the work provided he is given an assistant to execute the details. This would be a happy solution of the difficult task of finding an adequately qualified successor to the late Dr. Woodbury. The efficient manner in which the duties of the secretary's office were performed in conjunction with this week's convention by Mr. Fish and his assistant S. H. Mildram was a practical demonstration of an ideal method of solving this problem that could hardly have failed to impress the Board of Government.

The committee on resolutions, of which Charles T. Plunkett was chairman, was deprived of the co-operation of two valuable members who were unable to be present. R. M. Miller, Jr., ex-president of the American Association, was prevented from attending on account of poor health, and Col. John P. Wood, president of the National Association of Wool Manufacteurers, was also unable to be present. Mr. Plunkett had the able co-operation of John Skinner, treasurer of the West Boylston Manufacturing Co., Easthampton, Mass.; Clarence Whitman, of Clarence Whitman & Co., dry-goods commission merchants, and William L. Lyall, treasurer of the Brighton Mills, Passaic, N. J. Their method of presenting the association's views on military and industrial preparedness was direct and emphatic. The tariff resolution was particularly happy in its reference to "the present accidental and temporary protection." There was no circumlocution about the resolution favoring adequate action and legislation to prevent misbranding of fabrics, fraudulent advertising and other similar practices. Free trade Congressmen who have been trying to make it appear that the textile industry did not favor duties upon dyestuffs will have to eat their words after reading the resolution on this subject. These and the other resolutions presented and adopted reflect great credit upon the committee because of their directness and conciseness.

Worthy of note is the fact that part of the tariff resolution referring to the necessity of an adequate American dyestuff industry gave due cognizance to the interdependence of the manufacture of dyestuffs and of high explosives; they referred to the dyestuff industry as one "which promotes alike industrial safety and national defense." The skillful manner in which the Administration and Congress have avoided this feature of the problem would seem to indicate that, in some manner, it must be loaded. If this is the case it must be loaded for Republicans as well as Democrats, for the former have been almost as careful in avoiding reference to this interdependence as have the latter. If the Republicans fear that exploitation of the subject might impel the Administration to propose government control of both industries, they should find an answer in the fact that no attempt has been made to absorb the duPont business. If the Democrats feel that a higher tariff upon dyestuffs would be equivalent to the subsidizing of the duPonts, as well as placing them upon the horns of a political dilemma, it ought to be possible for them to find a solution by restricting the higher tariff to a fixed period. A majority of users of dyestuffs believe that a higher tariff is the solution of the problem, but what they and dyestuff manufacturers especially want is definite action of some kind and relief from present uncertainty.

More important than all of the other resolutions upon national problems was the action of the association in adopting the resolution presented by ex-President William D. Hartshorne recording their approval of the 8½ per cent. regain for cotton. Their action is binding upon no one, and it may be many years before the trade progresses to a point where it becomes sufficiently impressed with the importance of buying and selling cotton and its manufactures with due regard for their moisture content, but this point will be reached eventually and the trade will then wonder how present slipshod methods could have been so long continued. When that time arrives the National Association of Cotton Manufacturers can "point with pride" to the date and the wording of this resolution. It is a step toward the organization of systematic research work in textiles and due regard for scientific exactness in buying, manufacturing and selling.

The resolution on the death of the late Dr. Woodbury that was adopted by the association is the one that was drawn up and published by the Board of Government immediately following his death. They made more formal the thoughts that were in the mind of practically every member. The thoughtfulness of Dr. Woodbury's family in allowing the Strain portrait to be hung in the convention hall was deeply appreciated by everyone. Many of the members had never had the opportunity of viewing this excellent likeness of Dr. Woodbury. It led many to regret that the organization had no permanent place of meeting where this and other portraits of former officers could be hung, where a great textile library could be made available for members' use, where collections of textile manufactures and of textile appliances could be displayed, and where members could have a permanent place of meeting something after the idea of the Engineers Club of Boston. It may be too ambitious a plan to be given serious consideration, but it will not be because the textile industry of New England is not large enough, important enough and prosperous enough to make such a proposition feasible. This and other schemes that now look Utopian will have to wait until it has become large enough to know itself better, and to be able to eliminate automatically the small personal jealousies that now exist.

President Duncan and the Committee on Meeting are entitled to and received many congratulations on the one hundredth annual meeting of this oldest of all textile associations. The Committee on Meeting was composed of: Messrs. Franklin W. Hobbs, chairman; Charles H. Fish, Stephen C. Lowe, Frederic W. Parks and W. Frank Shove. Messrs. Fish and Lowe were a sub-committee which had charge of the dinner arrangements.

Among the prominent southern manufacturers who were present at the textile exhibition and the convention were J. W. Cannon, Concord, N. C.; M. F. Cole, Newnan, Ga.; Samuel F. and John L. Patterson, Roanoke Rapids, N. C.; J. C. Plonk, Cherokee Falls, S. C. and George W. Robinson, Danville, Va. Not far from 100 Southern manufacturers and machinery and supply men were present during the week, but the majority of them gave their whole attention to the textile exhibition.

The largest single southern delegation was headed by J. W. Cannon, the well-known manufacturer of Concord, N. C., and a director of the American Cotton Manufacturers Association. He was accompanied by J. W. Cannon, Jr., Charles Hill, secretary-treasurer of the Amazon Cotton Mills, Thomasville, N. C.; E. C. Barnhardt, secretary-treasurer of the Gibson Manufacturing Co., Concord, N. C.; Martin Glynn, manager of the Cannon Mills yarn department, and by the Boston selling force of the Cannon Mills. It was the first time that Mr. Cannon had visited Boston since his selling organization opened an office in that city, and prior to visiting the textile exhibition he inspected the local quarters of his firm.

Seven of the former presidents of the association were present at the convention, as follows: Walter E. Parker, agent Pacific Mills, Lawrence, Mass.; Edward W. Thomas, agent Boott Mills, Lowell, Mass.; Russell W. Eaton, agent Cabot Mfg. Co., Brunswick, Me.; Charles H. Fish, treasurer of the association; William D. Hartshorne, Methuen, Mass.; Charles T. Plunkett, president Greylock Mills and vice-president Berkshire Cotton Manufacturing Co., Adams, Mass.; Franklin W. Hobbs, president Arlington Mills, Lawrence, Mass.

The delegation of officers of the Southern New England Textile Club who were present received many congratulations regarding the success of the big Worcester dinner last Saturday. Of course, Fred W. Steele, agent of the Fisher Manufacturing Co., Fisherville, Mass., and chairman in charge of the Worcester meeting, received the lion's share of these congratulations. Among the officials present were President Henry C. Dexter, and Messrs. Howe, Hinckley, Grant, Greene and Makepeace of the board of directors, and Secretary-Treasurer Fred L. Chase.

J. R. Montgomery, president of the J. R. Montgomery Co., Windsor Locks, Conn., and a former director of the association, has not been as frequent an attendant at association meetings as in former years, but found much pleasure at the Boston meeting in renewing old acquaintances. Accompanying him was Joseph Merriam, president of the Springfield Webbing Co., Middletown, Conn.

In presenting the report of the Committee on National Legislation John S. Lawrence, the chairman, spoke at some length in regard to the misbranding of fabrics and in endorsement of the work that was being done by the Federal Trade Commission and cited in particular the case that has been mentioned in these columns in regard to selling mercerized cotton goods as silk. He urged the prosecution of such cases for the protection of honest manufacturers and the report of this committee took tangible form in a resolution presented by the Resolutions Committee and unanimously adopted. The other members of the Committee on National Legislation are: Messrs. A. F. Bemis, James Thompson, Russell Lowe and John P. Wood.

Lee Rodman, treasurer and manager of the Indiana Cotton Mills of Cannelton, Ind., was a visitor at the Convention. Mr. Rodman is the secretary of the Middle States Textile Manufacturers' Association, and a great believer in the "open price" idea. It is due to him that the cotton sheeting manufacturers formed an organization some years ago to report prices to the central office and prevent cut throat competition. For two years the plan worked finely, but the association finally disbanded from causes which Mr. Rodman believes could be overcome by a stronger organization and firmer agreement. The success of the open price idea in other lines of industry has been marked and it will be remembered that at last year's Convention this subject was the theme of an interesting address by Clark McKercher. The open price movement is not to be confused with a combination to maintain prices or restrict territory, but members inform each other as to fundamental conditions, selling prices, distribution of goods and other details which competitors are usually most secretive about.

Messrs. Church, of the Monument Mills, were visitors at the exhibition early in the week. On Wednesday C. I. Sweet, assistant superintendent of the Monument Mills, visited the show with eight overseers, and on Thursday T. E. Ramsdell, the agent, brought twelve of their prominent men.

Joseph McGraw, of the Mitchell-Bissell Co., was at Mechanics Building all the week meeting his many textile friends. He considered the show the best exhibition of textile machinery and processes that he had seen. Mr. McGraw is making a trip among New England mills.

J. C. Hardy, of Jones & Hardy, Inc., while enthusiastic over the success of the week, would like to see the Boston show and the Philadelphia show combined to make an even bigger and better display, and bring all the mill men together at one time. Mr. Hardy talked with some interesting prospects during the week, and mentioned that several Canadian manufacturers were interested visitors to their space.

In previous Boston shows the Philadelphia Drying Machinery Co. had only table displays. This year two large drying machines were shown in operation, and W. W. Sibson, secretary-treasurer, is convinced that an operating display showing the actual equipment is productive of the best returns. The interest shown was pleasing to the company.

The National Calling System, a new line of the National Scale Co.'s electrical division, was usually surrounded by interested mill men. The horn signal was heard distinctly all over the main floors.

Geo. P. Erhard, treasurer of the Stafford Co., gave his usual luncheon to Canadian friends at the Algonquin Club on Thursday. Mr. Erhard formally operated mills in Canada. This year's luncheon was voted the best given in a long series of years.

Churchill Hungerford of Hungerford & Terry, Inc., talked over filtration problems with some of the biggest mill men of the North and South. A number of paper manufacturers were interested in the results accomplished by the Hungerford filter.

The miniature cooling pond and air washer of the Spray Engineering Co. was one of the attractions in the power show, and being plainly in view from the steps drew a steady stream of engineers.

W. H. Cummings, of the Ounegan Mills, Wm. Deacon, of the Forest Mills, and Frank W. Phelps, of the Old Town Woolen Co., were some of the agents of the American Woolen Co.'s mills that visited the show.

W. B. Hosford, vice-president of the Dodge Manufacturing Co., Mishawaka, Ind., visited the space of the Dodge Sales & Engineering Co. during the week. Mr. Hosford pronounced the show the finest that he has seen and was well pleased with the interest shown in their transmission equipment.

J. B. Cudlip, agent of the Cornwall & York Mills, St. John, N. B., spent part of the week in Mechanics Building investigating the improvements that have been made in cotton machinery and processes and renewing many old acquaintances.

James Speed, of Speed & Stephenson, Boston, visited the show and was kept busy greeting mill men from all sections of the country in a business and general social manner.

S. B. Paine, manager of the mill power department of the General Electric Co., who has followed the machinery exhibitions closely, considered this year's show a big step forward in both value of displays and interest created. He was well satisfied with the interest shown in G-E equipment.

Exhibition Notes.

IT has been the custom for the management to provide entertainment to the male members in attendance in the different booths, and this year they have taken into consideration the fact that the young ladies were as much deserving of appreciation as the gentlemen. Consequently Friday morning a breakfast was served at the Hotel Lenox, after which the young ladies were taken in automobiles all over the city, reaching the hall just in time for the opening of the exhibition. Between fifty and seventy-five young ladies were entertained.

Missing the familiar countenance of Henry L. Scott during the first few days of the exhibition, inquiries brought forth the fact that he was celebrating the advent of a daughter, born on April 17. The little girl has been named Ruth Angie.

One of the big orders closed at the show was the sale of approximately 500 atomizers by the American Moistening Co. These were of a type similar to the "spouter" in "Nature's original humidifier," the big whale which spouted at regular intervals on the top of their exhibit.

John Brandwood, managing director of the Elton Cop Dyeing Co., Bury, England, came to the United States especially to visit the Textile Show. He was on hand during the week at the space of the Delahunty Dyeing Machine Co., American agents for the Elton Cop Dyeing Co.'s beam dyeing equipment.

There were rumors at the show of large orders for equipment to be placed during the week by one of the large Canadian companies. Whether the contracts were closed was not known at the time of going to press. Canada was well represented by visitors at the exhibition.

It was announced at the show that Mr. McGovern, who recently came up from South America with President J. R. Leeson, of the Universal Winding Co., and has been located at the plant in Auburn, mastering the principles of the various machines of the company, will shortly return to South America to open up agencies for the Universal Winding Co.

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Equipment of

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ASSONET, MASS.

In Lots to Suit Purchasers

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1—P. & A. 2-beater Breaker, Buckley Opener and Sargent Feed, 40".
1—P. & A. single-beater Finisher, 40".
4—Hetherington Cards (1887), 24 doffers, 36", 104 top flats, 1¾" wide, 12" coilers.
20—Deliveries Hetherington Drawing.
2—Saco Water Power Slubbers, 60 spindles each, 12 x 6.
3—Saco Water Power 84-spindle Intermediates, 10 x 5.
4—Saco Water Power 144-spindle Speeders, 7 x 3½.
13—Whitin Spinning Frames, 208-spdl. each, 1¾" ring, 8" traverse, 2¾" gauge, rabbeth spindle separators.
3—F. & J. Twisters, 108 spdl. each, 4½" ring, 6" traverse, 5½" gauge, 15" diameter, spindles tape drive, creel for twelve ends, NEW.
1—Foster Cone Winder, 60-spdl., center drum, 6" cones.
1—Hopedale Warper with Entwistle Baller and creel for 504 ends, 6" spools.
1—Hand Baling Press, 32 x 48 x 36.
2—Carpenter Reels, 60-spdl. each, 54" skein.
1—Singer Sewing Machine, Table and Controller.
1—B. & S. Yarn Reel, 54", 4-spdl.
2—Hopedale Spoolers, 120-spindle each, 4¾" gauge, 6" traverse, Wade bobbin holders.
1—Universal Winder No. 50, 6" tubes, ⅝" dia., single end.
1—Universal Winder No. 5, 3 ends, 6" tubes, ⅝" dia.
1—Universal Winder No. 5, 1-end, 6" cones.
1—Balling Machine, 12-spdl., 8" gauge, 6" spdl.
10—Lowell Camless Winders, 16-spdl. ea.
1—Lowell size mixer, 100 gal.
6—Whitin Quillers, 378 spdls. each.

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Southern New England Textile Club Meeting at Worcester

THE third annual Worcester dinner of the Southern New England Textile Club was held in the Hotel Bancroft in that city last Saturday afternoon. The attendance has been larger at previous dinners, but never when weather conditions were so unfavorable as was the case last week. Over 350 acceptances had been received by the dinner committee and there is little doubt but that the attendance would have been considerably in excess of 500 if the day had been fair. The dinner, the speaking and the informal receptions before and after the dinner were as enjoyable as any that have ever been participated in by club members and reflect great credit upon the committee.

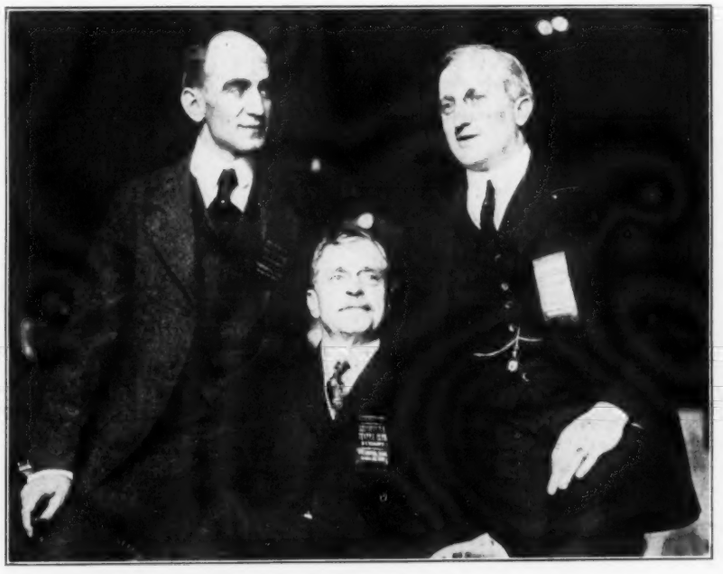
FEATURES OF THE DINNER

The club was particularly fortunate in having as its principal guest and speaker the Hon. John Barrett, Director General of the Pan-American Union, Washington, D. C., and former U. S. Minister to Argentina, Panama and Colombia. Mr. Barrett's subject was the "Commercial Opportunities for New England With Central and South America." It was only by the greatest good fortune that the committee were able to secure Mr. Barrett, and as it was he did not arrive in Worcester until after the dinner started, and was obliged to cut short his address in order to leave for Springfield where he was scheduled for a talk that evening. Lighter entertainment at the dinner was provided by Battery B band and the Imperial Quartet of Worcester, and by Miss Hazel Childs who sang popular songs in cabaret style.

CREDIT DUE COMMITTEE

Unusual credit is due to the committee in charge of the dinner because of the short time available for their work, and because of the few men in active charge of the details. The actual work devolved upon Fred W. Steele, chairman; Thomas T. Booth, treasurer, and John E. Washburn, who had charge of the entertainment. The club had an invitation from the Textile Exhibitors Association of Boston to hold their dinner and meeting in that city during "Textile Show Week," but the Worcester members had no intention of giving up the annual dinner in that city and the directors of the club decided in their favor. This was about two weeks before the date of the meeting and all arrangements for the latter had to be completed within this period. No difficulty was involved in arranging for the banquet itself, for the management of the Hotel Bancroft co-operated heartily with the committee to make it a success, but it was no small task to obtain at so late a date a speaker of national prominence. It had been hoped that former-President Roosevelt could be secured, but the political situation and his recent non-political visit to Cambridge, Mass., prevented. Certain other possible speakers, including Hon. Augustus Gardner, congressman from Massachusetts, were considered, but the problem was happily solved when Mr. Barrett's consent was obtained. Messrs. Steele, Booth and Washburn were principally responsible for the success of the two previous dinners given in Worcester by the Southern New England Textile Club, and it is doubtful if any other three men, without the experience thus gained, could have staged a dinner in so short a time that was so perfect in all its details.

There was no formal reception committee, but practically every manufacturer and member of the allied trades of Worcester and vicinity was conscripted and officially tagged with a red badge when he entered the hotel. As an actual fact, no official reception committee was needed as one of the principal objects of the Southern New England Textile Club is to propagate closer social relationships among its members and the members of the industry it represents, and the organization is a permanent committee of the whole with this laudable object always in view. The informal receptions that always precede and close the club's dinners are among the most enjoyable features of these gatherings and at Worcester there was no lack of opportunity for social intercourse. As the members entered the lobby of the hotel, they were greeted by an electric sign which outlined in red bulbs the words "Welcome Southern New England Textile Club." Battery B band gave a concert in the lobby prior to the dinner, and in the evening the hotel management tendered a cabaret entertainment to members and guests of the club.



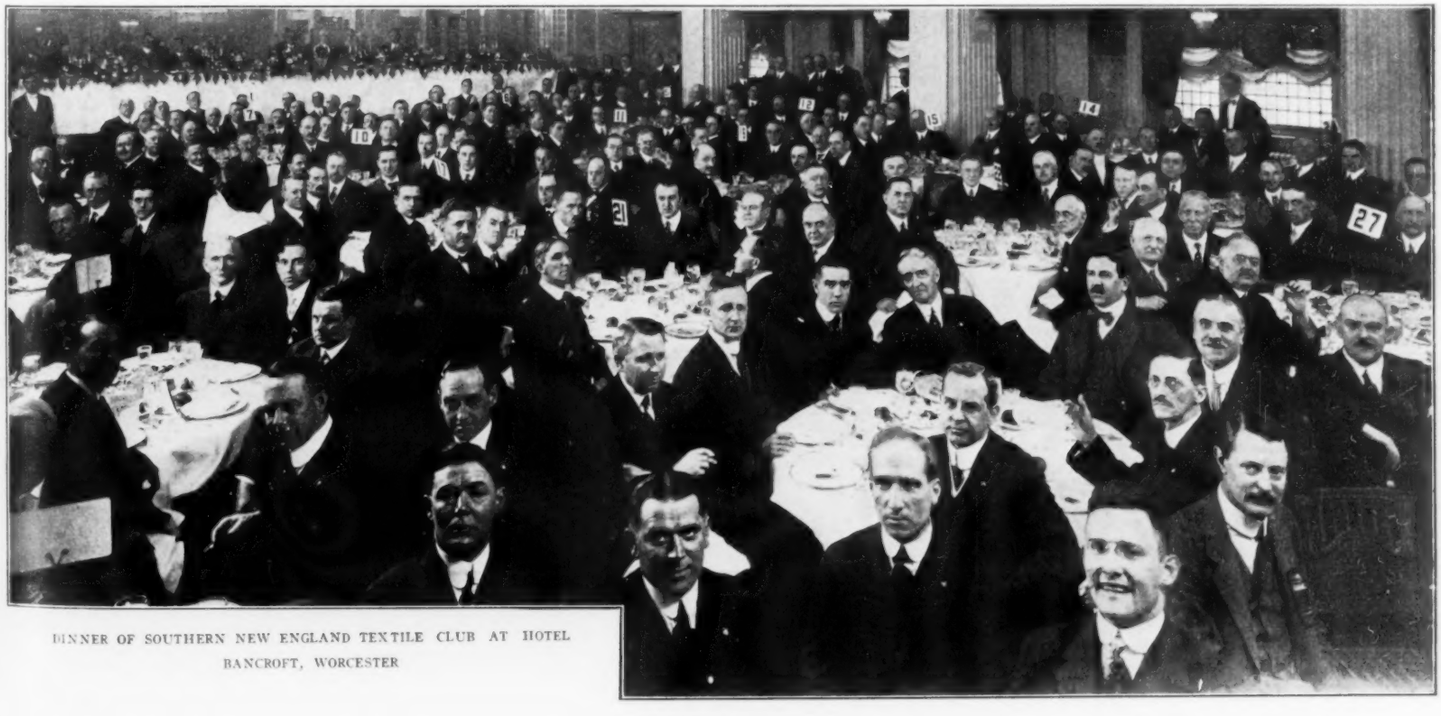
THE COMMITTEE THAT DID IT. FROM LEFT TO RIGHT: FRED W. STEELE, THOMAS T. BOOTH, JOHN E. WASHBURN

THE DINNER AND ENTERTAINMENT

Dinner was served promptly at 2:30 p. m. in the ball room of the hotel. The speakers' table was located on the stage at the end of the ball room. Seated with President Henry C. Dexter were the Hon. John Barrett, J. Russell Marble, Fred L. Chase, George A. Grant, Fred W. Steele, Thomas T. Booth, Wallace I. Stimpson and Herbert Lyman. Members and guests were seated at small tables accomodating six or eight persons and every table was filled. Battery B band and the Imperial Quartet alternated in presenting musical numbers, and the audience displayed its vocal ability whenever opportunity was afforded. Miss Childs' cabaret singing was much enjoyed and she had a full chorus on her last song, "Good Bye Boys."

THE AFTER-DINNER SPEAKING

The formal greetings extended to the club at previous Worcester dinners by the Mayor or his representative were dispensed with on this occasion, both the officials of the club and of the city being confident that the members and guests of the organization were sufficiently well acquainted with Worcester's attractions to need no formal introduction. Preceding his introduction of the Hon. John Barrett, President Dexter extended the hearty thanks of the club to the committee who had done so much to make the dinner a success, and spoke in an informal way of the importance of Worcester as an industrial center. His statement that "We are here again to enjoy a royal Worcester reception" was accepted by many of the members as having a double meaning. He then gave a stirring talk on the necessity of commercial and military



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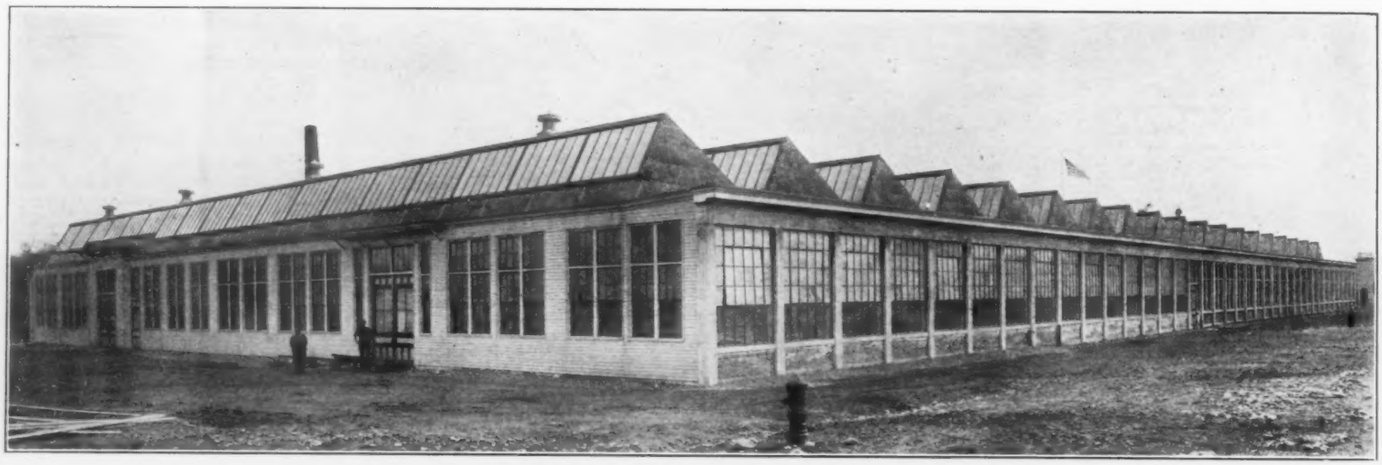

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preparedness which aroused general enthusiasm. He stated that men enjoying the advantages of citizenship in this country must be prepared to assume all of the responsibilities that go with it, and illustrated his statement with a story of Napoleon and the old soldier. The veteran had lost an arm in the service and had been made a chevalier in recognition of his bravery. After receiving his decoration the soldier saluted Napoleon and said, "Sire, you made me a chevalier because I lost one arm. What would you give me if I had lost both arms?" Napoleon replied, "I would make you an officer of the Legion." Whereupon, as the story goes, the veteran drew his sword and cut off his other arm. President Dexter stated that our patriotism need not require such impossible sacrifices. In presenting Mr. Barrett he stated that he really needed no introduction except to review his numerous diplomatic activities. His first appointment in the diplomatic service was as minister to Siam. Later he was given special commissions to India and Japan. Still later, he was successively minister to Panama, Colombia and Argentina. He was the most active spirit in the organization of the Pan-American Union and since its initiation

MANAGER AVERILL, OF THE BANCROFT, PRESENTS THE KEYS OF THE HOTEL TO PRESIDENT DEXTER

in 1907 he has been its executive officer. "No one," said Mr. Dexter, "is better able to speak authoritatively of conditions in South America and of the commercial opportunities now presented to us in those countries."

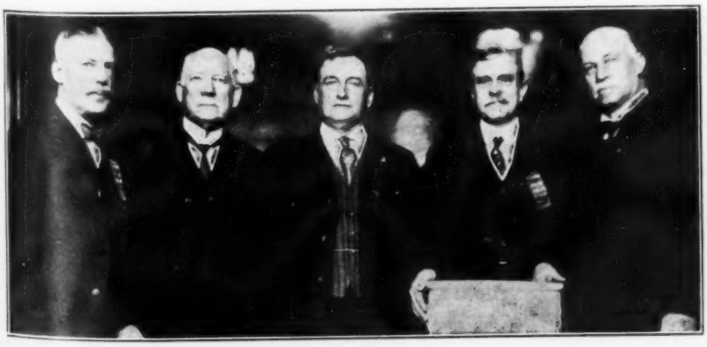
HON. JOHN BARRETT'S ADDRESS

After paying a tribute to President Dexter's oratorical ability, and telling of the pleasure it gave him to be able to speak to a textile audience of the business opportunities in South America, Mr. Barrett spoke in part as follows:

The commercial opportunity for New England in Central and South America is one of vast possibilities. It has its difficulties, handicaps and disappointments, and the field is far from being an Eldorado; but potentially it means millions of dollars annually of increased trade for the manufacturers of New England, if they will take advantage of the present situation and prepare for the future. A careful survey of the imports of the twenty Latin-American countries, valued annually at over one billion dollars shows that two-thirds of the manufactured products purchased from foreign countries could be supplied by the industries of the five New England states. Among the principal items of those imports are textiles valued at nearly one hundred million dollars but of this total, New England supplies such a small portion that it is not yet a powerful factor in the control of the opportunity.

Although there are at the moment serious obstacles in the path of Pan-American trade development, notably in the lack of shipping facilities and in the high cost of freight transportation, it is of the highest importance that the New England manufacturers should study present conditions and get ready for those that will obtain after the declaration of peace permits the readjustment of shipping facilities and the re-establishment of normal conditions.

HOTEL BANCROFT, WORCESTER, MASS.

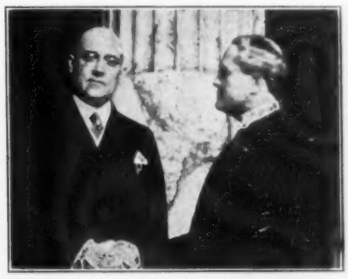


TREASURER BOOTH HOLDS THE "DOUGH DISH" FOR A DISTINGUISHED GROUP

The New England manufacturers must appreciate at this moment, certain cardinal and paramount facts. The first is that the Pan-American field is actually deserving of their best efforts, despite its difficulties. This statement is proved by the figures showing the value of the exports and imports exchanged between Latin America and foreign countries in 1913—the last normal year of trade before the war, and also the share that belonged to the United States. Latin-America's total foreign trade was valued in 1913 at approximately three billion dollars ($3,000,000,000). The share of the United States was about eight hundred million dollars, including both exports and imports. These figures are especially impressive because they prove the truth not generally known, that the United States, and not Great Britain or Germany, held in 1913 the first place in the foreign trade of Latin-America. The corresponding totals for respectively Great Britain and Germany were $640,000,000 and $410,000,000.

THE FITCHBURG DELEGATION AT THE DINNER, ALL MILL MEN, EXCEPTING THE TWO FREDS—DILLON AND PARKS

The second great fact is that immediately after the war, the manufacturers of New England will confront in Latin-America the fiercest competition for control of its markets ever known. In every Central and South American port and commercial center, are the busy and clever agents of British, French, Belgian, German, Austrian and Japanese ready to start at the drop of the peace hat, so to speak, in the great race to recoup and build up their Latin-American trade, which the war has largely stagnated or entirely eliminated.



PRESIDENT DEXTER (AT RIGHT) MEETS HON. JOHN BARRETT

The third great fact is that the present and prospective merchant steamship facilities required for Pan-American trade, are entirely and woefully inadequate, and consequently the greatest immediate need of the hour is the passage of legislation by Congress which will speedily and effectively rehabilitate the merchant marine flying the United States flag.

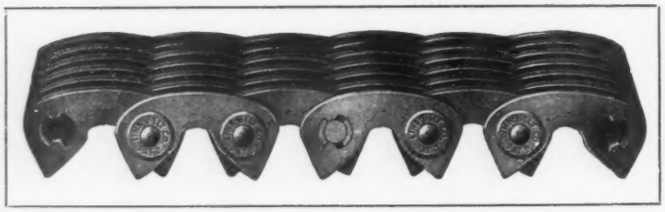
The fourth great fact is another practical and pressing need, namely, that of legislation by Congress, to be at once passed, which will permit the small manufacturers of the same products in the United States to pool or combine for the purpose of successful trading in foreign lands. Only in this way can the rank and file of New England manufacturers ever permanently and profitably compete with the average manufacturer and exporter of Europe.

The fifth and final fact of importance is that the commercial, financial and economic development of Latin America to-day is largely dependent upon the investment of United States' capital in Latin America, to meet its official and private demands for money for government loans and the financing of private enterprises and undertakings, formerly, but no longer, cared for by Europe. If the bankers and financiers of New England and the country at large will invest $500,000,000 in Latin America during the next five years, they will increase the Pan-American trade of the United States an equal or greater amount.

AMONG THOSE PRESENT

The only record of those present is the following list of acceptances re-

Quiet Mill Operation



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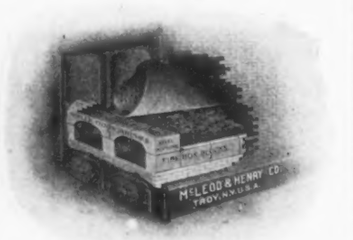

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Alanson Thayer, Gay D. Thayer.

Geo. A. Vaughan.

Robert Wallace, J. F. Walsh, Albert Walton, J. F. and W. H. Warren, John Washburn, Alex. West, W. W. Windle, F. H. Willard, John M. Whittemore, F. A. Wispma, M. J. Woodrow, P. C. Wentworth.

ENGLISH TRADE DISCOUNTS

Effort to Change Method of Sale in Woolen Trade

(*From Our Regular Correspondent*)

LONDON, ENG., March 29.—Irregularity has obtained in the woolen trade on cash discounts. Cloth has been sold under 2½ per cent. discount for payment in one, two or more months, this rate of ordinary discount being nearly invariable. But in paying before the due date there has been great latitude, customers deducting anything between ½ per cent. and 1¼ per cent. extra for cash in seven or ten days. To pay cash in seven days less 3½ or 3¾ per cent. instead of in, say, six weeks with 2½ per cent. is to make a manifestly remunerative use of money. Instead of lying in the bank and earning at interest 2½ per cent. per annum, the money earns 1 to 1¼ per cent. per five weeks or 10 to 12½ per cent. per annum. The incentive to quick payment is a big one and manufacturers without big mills or big capital have elected to do most of their business on lines which give the jobber this advantage.

However, the arrangement cuts both ways. In assenting to such a bargain, the manufacturer buys money at more than it is worth to him if he in turn has to put the prepayment to current account in the bank. Bankers lend at 4 or 5 per cent. in normal times and lend even at 6 per cent. in war time. Two hundred manufacturers have attached their signatures to new terms of sale whereby the jobber in prepaying his account has first to deduct the ordinary 2½ per cent. and then deduct interest at the rate of 6 per cent. per annum from the due date to the time of prepayment.

Textile Patents

FABRIC-making machine. 1,176,138. Clarence H. Frederick, Kenosha, Wis.

FIBERS, Method and apparatus for working the noils from animal or vegetable. 1,176,116. Julius Weinbrenner, Thann, Germany.

FIBERS, Producing colorations on. 1,176,363. Fritz Gunther, Ludwigshafen-on-the-Rhine, Germany.

MOTION, Comber feed. 1,176,318. Edwin H. Rooney, Whitinsville, Mass.

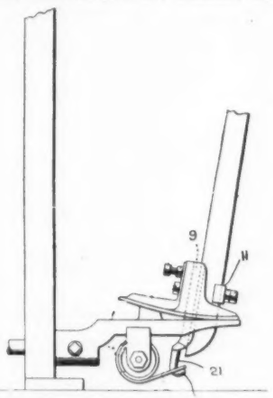
SHUTTLE. 1,176,681. Emmanuel La Vallee, Pawtucket, R. I.

YARN beam. 1,175,953. Eugene and Lafayette Holt, Burlington, N. C.

PICKER-STICK MECHANISM

A modification of the usual picker-stick mechanism of the Northrop type of loom, more easily repaired and which will save material has been patented. The clamping member, 9, is provided with an extension, 21, having a hooked end, 22, to which the strap is fastened. The pull upon the lower end of the picker-stick for returning to normal position is substantially tangential, providing an increased leverage on the picker-stick.

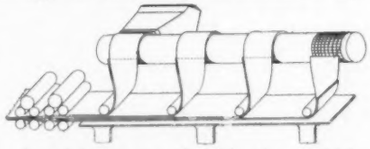
By this construction the distance between the drum and the hook, 21, is approximately half the distance between the drum and the clamp, 11, which secures the strap to the picker-stick in the old form of construction, saving material. The using of substantially half the length of the usual strap avoids a considerable amount of stretching of the straps and insures a more uniform operation of the picker stick. Moreover, the new device does not require the dismantling of the picker-stick to repair the strap, which should effect much saving in time.



APPARATUS FOR WORKING WASTE

A German inventor has patented a method and apparatus by which waste from combers is carried away from the machines to receive further treatment without being subjected again to processes through which it has already passed.

The essential features of the invention are the following: The carrying off of the fleece-like stripes from the squirrel-cage on which they are formed is effected by means of guide plates which are given a half-twist so that they receive the fleece at one end in a vertical plane and deliver it at the other end in a horizontal plane. These plates, which are preferably formed of sheet metal, guide the individual strips to a table provided with mechanically driven



(*Continued on page* 176)

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD JOURNAL. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.—EDITOR.

WASTE IN COTTON CARDING

Technical Editor:

Will you please answer the following questions: Should card hands cut off one to two yards of the last end of the lap and throw it into the waste can? Should speeder hands or spinners take down roving bobbins when they have one or two rounds of roving for the full length of the bobbin?

Carder (2641).

We do not allow a card hand to cut off one to two yards of the last end of the lap and throw it in the waste can as this only makes unnecessary waste. Only a few inches is necessary in order to make an even splice and prevent doubles from entering the card. Speeder hands or spinners are not allowed to take down roving bobbins having one or two rounds of the roving full length of the bobbin. One row at the most can be taken off, usually when the bare bobbin is visible. In order to have a creel run out together on a fly frame the pieces can be taken out and run up on a few ends at the end of the frame where the tender can watch them. WINTON.

WEAVING JACQUARD TURKISH TOWELS

Technical Editor:

Can you give me any definite information as to the advisability of working jacquard Turkish towels in the two following ways: First, using the jacquard to control both pile warp and ground warp; second, using a special loom in which the ground warp is controlled by harness and the pile warp is controlled by the jacquard. Please advise me which method you consider the better. Are there any special disadvantages which are serious in the use of the cam for controlling the ground and the jacquard for controlling the pile, as against the jacquard controlling both pile and ground? Naturally, this last system is a shade simpler.

Weaver (2652).

It is a common practice to use twine or steel heddles for ground work on jacquards. This does not mean that a special loom is required, all that is necessary being the mounting of a set of ordinary harnesses such as are used on plain looms in back of jacquard lines, before the drawing-in commences. If a plain ground is desired, the harnesses can be operated by ordinary plain cams, or if a twill ground, the ground harnesses can be operated by the broken row of the jacquard, which usually has a scope of about eight hooks. My experience has been on 400 and 200-hook machines, but the same principle applies to both machines or even to a smaller jacquard. This practice is very common in New England mills where the type of jacquard is usually a 200 or 400-hook machine, single or double lift. The sley of these machines permits of only 96 sley, but some beautiful double-bordered marquesette curtains and heavily reeded silk stripes, also heavily reeded extra warp patterns are woven by using ordinary harness for the ground work, mounted as described and operated either by jacquard machine or plain cams on the bottom shaft of loom.

Another point to consider: the ground of a Turkish towel must be very tight, hence the advantage of a shedding motion for the ground that is positive and sure to carry the threads low enough so that the shuttle will not skip under. If the lingoes are not heavily weighted the threads of the ground will not bottom on account of the upward pull, because the motion is not positive as with the cams. It is a bad practice to weight lingoes too heavily, as they soon cut a ridge in the comber board, particularly in a cross tie jacquard, and the lines and neck cords would be constantly breaking.

The most important reason for using ordinary harnesses for the ground is to eliminate vibration. For example, take a three-pick terry towel woven in the ordinary loose reed loom. The reed does not reach the fell of the cloth until the third pick and on this pick the pile is raised by pushing the pile warp against the tight ground. This would cause all the ground lines of the jacquard to vibrate excessively, thereby tangling up the lingoes and causing skipping and excessive breaking of lines. In all cases it will be found more convenient and cheaper to use ordinary harnesses for the ground when weaving terry towelling. LANESHAW.

JAPANESE PROCESS FOR ARTIFICIAL SILK

Technical Editor:

We noted in a recent report a notice regarding a new process for making an artificial silk, which, it is claimed, more nearly approaches pure silk in luster than any now on the market, and which has been invented by a Japanese. This process consists of the use of chrysalis oil and mulberry cellulose dissolved in a proper solvent. The fiber is produced in the customary way by forcing the liquid through minute holes. Can you give us any further information regarding this process? Mayfair (2653).

The product appears to be unknown to the English trade and the particulars rendered about its preparation inspire less confidence than they are presumably intended to do. Indeed, the details appear to come from someone with little knowledge of what is wanted in this material. The artificial silks surpass the natural in luster, and there is the minimum of reason for thinking that the way to make them "more nearly approach pure silk" in that respect, is by varying the raw materials employed. The improvement is not the one most desired. It is true that the pupa of the cocoons contains oil in a proportion of about five per cent. The oil is thought palatable in some Asiatic quarters and it can be used for soap. It may even be as good as any other oil for artificial silk manufacture, but in a general way oils are things that makers are particularly careful to exclude from their mixtures. Mulberry wood is understood to be especially suitable for making staves for wine casks and is said to lend white wine a violet flavor. Its merits as a pulpwood seem to have been hitherto overlooked and in the absence of other evidence a polite skepticism can be observed as to its special suitability for making cellulose silk. On these improbable lines invention is just a little too easy. Substitute oak for mulberry and you get doubtless an excellent tussah silk. Use grass instead of either and the product will, of course be a capital imitation of wool. JAMES STRAND.

SULPHUR BLACK FAST TO CROCKING

Technical Editor:

Please advise me if it is possible to dye sulphur black fast to crocking so that it will not rub off the goods.

Greenville (2634).

It is presumed that this inquiry re-

(*Continued on page* 165)

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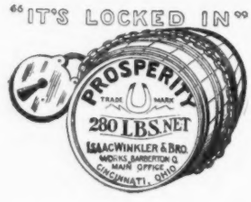

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COTTON MANUFACTURES—Continued (Export and Domestic Goods Markets)

COMPLICATIONS PREVAIL IN EXPORT BUSINESS

Bulk of Trade Is With South America—Attempts to Transact European Business Direct

At no time in the history of cotton goods exports has that trade been in such perplexity as at present. There are manufacturers who, although experiencing considerable difficulty supplying domestic demands, are attracted by inquiries from foreign markets that have semblance of developing into highly profitable business. Many of these merchants have never participated in foreign trade, and have little knowledge of how it should be conducted. They have been influenced to deal directly, and embarrassing complications have arisen because of unfamiliarity with conditions. It is difficult to determine the extent of direct business that is being transacted. In certain quarters of the market it is reported enormous, while in others it is believed to be insignificant. Most of the direct business is with European countries, and is the rsult of war conditions. There are complications enough in European markets, but should these same merchants attempt direct business with South America the problem would be even more difficult. There are a few mills and selling agents who have well organized export departments and are familiar with foreign business. They are known to be literally swamped with orders. Certain of these houses are regularly invoicing goods to a dozen markets within a single week.

SOUTH AMERICA ACTIVE

There are a great many buyers from South America in the market seeking merchandise. They are prepared to meet current prices, but mills are so well sold ahead that they have little to offer for prompt shipment. Jobbers, however, in a smaller way are doing good business. Buyers from South America are not all familiar with this market, and many of them have only a slight knowledge of English, while merchants here are not familiar with Spanish, or knowing that language have not sufficient knowledge of the trade to shop with them. It has been stated by one in close touch with cotton goods exports that present trade with South America is of greater volume than the total of all other markets. How much larger this trade is than before the war is difficult to ascertain at this writing; but it has been a factor of considerable importance to those who have manufactured goods suitable for export, and with present shortage of labor and supplies has helped materially to place them in an independent position that is without precedent. Several selling agents report that increased export business during the last three months has amounted to as much as their total business of the corresponding period last year. The River Plate district and West Coast are the most fertile fields for American goods. More high class merchandise is being shipped to Buenos Aires than any other port, but it is this merchandise that is hardest to obtain. Dyestuffs have reached such exorbitant price levels that there is no profit to the manufacturer unless he owns a good proportion of his supplies at lower figures than present market values, but it is essential to keep established merchandise on the market. Naturally with such a shortage there is less inducement to offer goods for export. Bleached goods are more profitable, and large orders have been placed in the Buenos Aires market.

BLEACHED GOODS OFFERED

There is strong incentive to press American bleached goods in foreign markets at this time because standard merchandise can be offered at prices that are not exorbitant and the manufacturer can continue to supply the brands established. This is not the season for buyers in the River Plate to take duck, yet demand for that fabric is active and manufacturers here can dispose of whatever they have to offer. On the West Coast trading in materials for bags is active. During 1915 exports of cotton goods to Chile fell off because of the poor showing in the fertilizer industry, but conditions have improved and that market is more active. Colombia and Venezuela have been well represented by buyers in this market. The range of merchandise sought is wide, comprising many cloths that before the war were obtained in Europe. Heavy colored goods predominate, although demand for bleached goods is improving. Brazil is probably the most difficult country in South America to penetrate with United States cottons. The textile industry is fairly well established and a large part of their needs are supplied by home manufacture. Banking facilities are not as favorable as in other South American countries, and it is harder to discriminate between good and bad accounts. The prevalence of requests from Brazilian merchants for special constructions affords another difficulty for the exporter in this market. With mills as well sold ahead as they are today it is next to impossible to induce them to make special goods even for favored customers in their home trade.

EXPORT ASSN'S REPORT

United States Gains, While England Loses in Export of Cottons

The Cotton Goods Export Association of New York, through its secretary, Howard Ayres, has issued its semi-annual report giving export figures on cotton goods from the United States, Great Britain and Japan for the 12 months ended Dec 31, 1915. The figures indicate numerous readjustments with the greatest gains over 1914 made by the United States.

For the calendar year of 1915 the United States exported 517,806,019 yards of cotton cloth against 326,477,879 in 1914 and 466,677,252 in 1913. Of last year's exports 209,346,014 yards were gray goods, 69,910,830 yards bleached and 238,549,175 yards colored. Bleached goods showed the greatest proportionate increase over the previous year. Less gray goods were exported than in 1913 and more colored goods. China is the only important market showing a decline in takings. That center took 116,175,688 yards in 1913, 39,439,487 in 1914 and 21,117,398 in 1915. Aden took 39,801,122 yards in 1915 against 9,445,902 in 1914. The Philippines took 112,883,234 yards against 78,097,417; Cuba 52,779,118

(*Continued on page* 159)

Comparative Quotations.

	Apr. 27	Last Year.
Spot cotton:		
Midland uplands, N. Y.	12.15c.	10.50c.
Print cloths:		
28-in., 64x60, 7.30 yd.	$3^{15}/_{16}$c.	$3^{1}/_{16}$c.
Gray goods:		
38½-in., 64x60, 5.35 yd.	5½c.	4¼c.
39-in., 68x72, 4.75 yd.	6¼c.	4⅝c.
39-in., 72x76, 4.25 yd.	6¾c.	6c.
39-in., 80x80, 4 yd.	7⅜c.	6½c.
Brown sheetings:		
36-in., 56x60, 4 yd.	6¼-6⅜c.	5c.
36-in., 48x48, 3 yd.	7½c.	5¾c.
Denims, 9-oz.	At value.	13-16½c.
Denims, 2.20s (Indigo).	18½c.	10½c.
Ticking, 8-oz.	15c.	11½c.
Standard prints.	5½-7c.	4⅝-5c.
Stand. staple ginghams.	8c.	6¼c.
Drills, 37-in., 3 yd.	7½c.	5¾c.

Quotations on colored goods are nominal. Certain lines at value.

ENGLISH COTTON WEAVERS ARE PARTLY SHUT DOWN

Trade in Gray Cloths Particularly Sluggish—Specialties Are on Best Side of Market

(*From Our Regular Correspondent*)

MANCHESTER, ENG., April 6.—The problems with which the Lancashire cotton trade has to deal are no easier of solution as time goes on; instead many are increasingly perplexing. Transportation facilities are no better and to important markets they are increasing in cost, freights to the Far East, for example, having gone up 12s. per ton measurement on April 1. Finishing charges are higher since the beginning of the month by 10 per cent. for bleaching and variously advanced for dyeing, while with indications of renewed activity on the part of German submarines, insurance rates, which had a tendency to ease off, have again stiffened. The absorption of labor by military requirements proceeds automatically, in spite of Government reservations in the spinning division, and the burden thrown upon fixed charges grows more onerous. Cotton for the time being is exercising no material influence, partly because, although fluctuating from day to day, it shows no well defined tendency, and partly because other factors might in any case make it but a secondary consideration.

At the beginning of this week there were 30 weaving sheds standing idle in Blackburn and district, shut down not on account of shortage of labor, but through lack of demand for their products. These manufacturers do not shut down willingly, and take that course only when it saves them from a greater loss than running. The products concerned are gray shirtings and other staples, the markets for which are largely in the Far East now, India and China, and which had before the war broke out, Turkey as another important outlet. Burnley, the center of the printing cloth output, is getting in line with Blackburn, many looms are idle there, and unless demand speedily improves a number of weaving sheds are likely to shut down entirely. In business done this week there have been instances of manufacturers with goods on hand accepting even small orders at prices tangibly below any open quotation in the market. One sale of 8¼ lb. gray shirtings 16 x 15, 37½ yards to the piece, comes under notice at 7s. 9. per piece, while the market quotations range from 8s. 1½d. to 9s. and the make was a fairly standard one; and 11¾ lb. printing cloth 19 x 22, 50 yards to the piece, sold at 15s. per piece, against open quotations of 15s. 4½d. to 15s. 10½d.

Figures relating to India, made known this week, are not cheering to the Lancashire industry. For instance, the output of the India Mills of gray and bleached cottons for the nine months ending Dec. 31, 1915, reached 810,068,714 yards or 168,441,554 yards more than in the corresponding period of 1914, and there was an increase, although smaller, in the output of colored goods and yarns. The total of recent imports into Calcutta from Japan is substantial enough to cause some misgivings as to Japanese competition and the wide assortment of descriptions is no less disturbing. Manufacturers in both India and Japan are probably benefitting by the present dearness, relative and actual, of the Manchester market. There is no sign of tangible improvement in busi-

(*Continued on page* 157)

PRINT CLOTHS ADVANCE AND HOLD CHIEF INTEREST

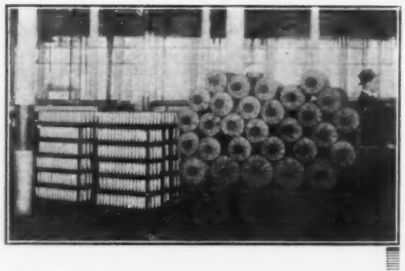
Colored Goods Quiet, Influenced by Dyestuff Import Rumor—Back Sales Keep Prices Firm

There are no weak spots in the cotton goods market, although certain lines are above the price parity of the general list, and quiet prevails where shortage of merchandise has influenced sellers to withdraw lines or retard their selling of goods. In certain lines prices are the highest attained in recent years, while in others former levels were considerably higher. Much has been written lately regarding high-price levels, and statisticians have gone as far as to prove that prices now are trivial compared with those of 1865. Conditions at the time of the Civil War were such that comparisons are ridiculous because of the price of raw cotton as well as general manufacturing demoralization that prevailed at that time. In 1864 middling uplands attained a high level of $1.90 a pound. Such strides have been made in cotton goods manufacture and dyeing processes during the last 20 years, that it is not practical to go further back for comparative figures. There have been times, as in 1907 when print cloths attained high levels, when prices have been above those that now prevail, but records do not show as broad a consumption of merchandise. The market in 1907 was speculative, and conditions did not warrant the high prices attained. In 1913 gray goods reached levels slightly above those now current, but high cotton was a factor. Dyestuffs are now valued at the highest prices in the history of the industry. This factor accounts for the high prices of colored goods. It is difficult to compare past values of colored goods with those of to-day as standards, have suffered because of dyestuff shortage. Many lines do not contain the usual percentage of dark colors, and the same degree of fastness is not guaranteed. It is stated in many sections of the market that mills have never been in as strong position as at present, or as independent. If domestic demand should slacken manufacturers believe they could find an easy market in foreign countries for their merchandise, while at present they have comparatively little to offer. Prices in England and France are higher than in this market on nearly all classes of merchandise.

PRINT CLOTHS ACTIVE

Print cloths ruled firm at prices attained several weeks ago when large factors entered the market, until recently when another advance set in. This section of the market is now the most active and prices are tending upward. On 80 squares 7¼c. has been refused for any delivery. Not a few bids of 7⅜c. have been declined and certain mills are asking 7½c. For May-June delivery there has been good business done on 39-inch 72 x 76s at 6¾c. Labor costs are steadily increasing and have already reached the highest level attained in 1907. With immigration practically shut off, and competition on the increase due to rapid development in other industries, relief is not probable. Manufacturers are not anticipating any radical curtailment because of the labor situation, although they believe production is now at its height. Fine and fancy goods are quiet in primary markets because mills have sold their product for the rest of the year, and buyers do not care to figure further ahead at prices asked. Cotton and silk mixtures

These Two Pictures Illustrate the Solution of Your Haulage Problem



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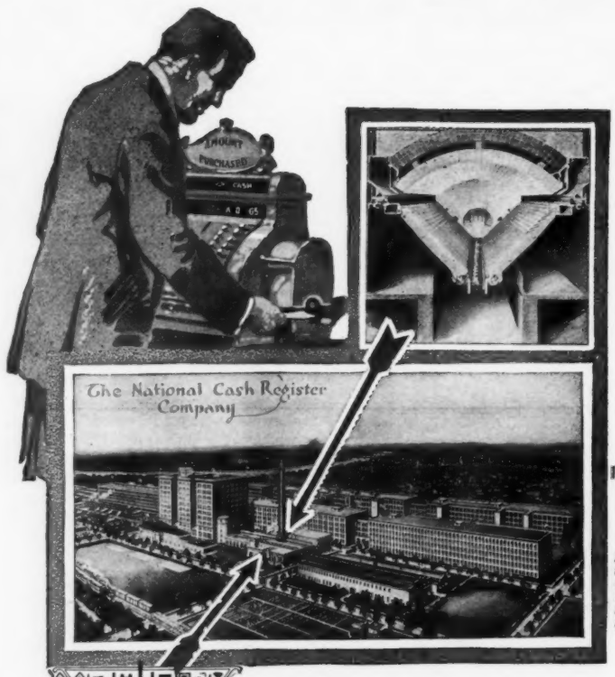

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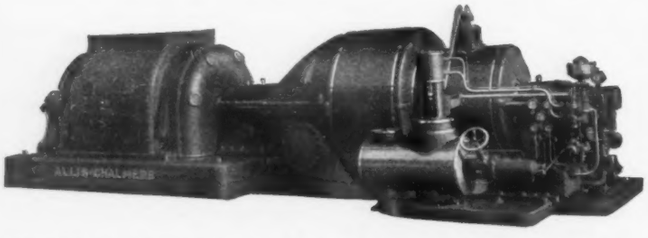

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122

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have weakened because of the drop in silk prices. Trading in this merchandise is precarious at present, but if silk prices recede to the levels certain merchants predict, an active demand is expected.

COLORED GOODS QUIET

The report that Germany has consented to release 15,000 tons of dyestuffs has had an effect upon colored goods. Manufacturers have been unable to gather definite information regarding this prospective shipment, and the opinion that political propaganda is at the bottom of Germany's action is spreading. None of the large factors in the dyestuff trade will admit knowledge of this supply and considerable doubt is expressed on its materialization. The market, however, was in a receptive mood for such information and is anxiously awaiting developments. Selling agents, although not pleased with the situation, are little concerned because they are sold up for the next six months and prices are unchanged. If such a large supply of dyestuffs should come into this country, manufacturers would be enabled to entertain many of the inquiries from export markets which they have been forced to decline. Bleached goods are unchanged from prices quoted last week, but advances to meet the rise in gray goods are in evidence. Bleacheries have never exceeded their present production nor have been so well sold ahead.

DUCK MARKET STRONG

Manufacturers of duck are running day and night wherever possible, to meet demands, and although cotton values remain low, prices are steadily advancing. Exports have been an important factor, but domestic takings have also been large and the move for preparedness promises to increase consumption.

COTTON GOODS TRADE NOTES

Grinnell Willis & Co. announce that they have been appointed sole selling agents for the Grendel Mills and Ninety Six Cotton Mill, of Greenwood, S. C., manufacturers of sheetings and print cloths for the converting, jobbing and export trades. These accounts are to be taken up May 1.

Amory, Browne & Co. have selected tickets for their line of bleached goods for export. These include American Maid, Sea Bird, King of All, Queen of All, Snow White Cotton, Pride of the Lawn, and Game.

Charter of incorporation has been granted to Edmund S. Twining, J. Gilbert Jones, Robert F. Conley, as the American Textiles Export Corporation, with capital of $500,000. There have been no official announcements concerning the officers of the corporation or plans for the future. It is understood, however, that a general textile export business will be conducted with headquarters at Newark, N. J.

MANCHESTER (ENG.) MARKET

(*Continued from page* 155)

ness here for India in gray shirtings, dhooties or jacconets. Bids from China for gray shirtings are few and hopelessly low, in spite of the fact that this week's advices from that quarter again tell of small stocks and a strong market there in nearly all descriptions of cotton goods, while China's requirements in bleached shirtings appear to be met by recent purchases, and only a limited business is now coming in. The staple goods end of the market is in poor condition and throws into stronger relief the situation in miscellaneous fabrics, specialities and fancies, both plain and colored. For these the home demand continues good and is still well supplemented by orders from the United

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For 1,000 Spool
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Floor Space occupied, 5 x 7 ft. Made for any size spool, 1½″ to 5″ diam., 3″ to 7″ long.
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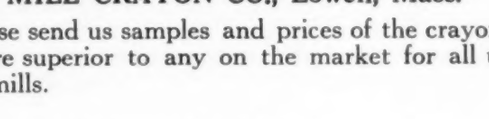

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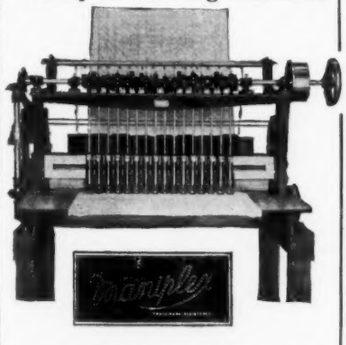

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States, South America and the Colonies. Where practicable, machinery is being diverted to the output of such goods by the addition of loom attachments and in other ways by manufacturers whose regular outlets are sluggish, but so far the effects of this are not noticeable. Considerable army orders are in the market, but as maximum prices are fully 10 per cent. below the figures on previous orders, they are not so attractive as before.

The yarn division shows no new feature of importance. Spinners of two-ply for army purposes have frequently conceded 1d. per pound, but no sales have come under notice so slow as the proposed Government maximum of a basis of 15d. per pound for two-ply 40s. The general tendency continues downward and American twists have given way a further ¼d. on an average, with wefts the easier. Fine Egyptian counts continue steady and in limited supply.

LANCASTRIAN.

EXPORT ASSN'S REPORT

(*Continued from page* 155)

against 26,427,283; Colombia 22,833,087 against 11,246,301. Several of these increases are deceptively large because of an abnormal decline in 1914.

England exported a grand total of 4,748,904,600 yards of cotton cloth in 1915, against 5,735,854,700 in 1914, and 7,075,558,400 in 1913. In 1915 India's takings totalled 2,012,062,500 yards against 2,736,818,800 in 1914. Turkey shows the greatest proportional falling off, from 270,737,400 yards in 1914 to 10,167,700 in 1915. Other centers showing losses are China, East Indies and Philippines, South America, Canada, United States, British West Indies and Japan. Those showing gains are Europe, Egypt and other African ports, Australia and New Zealand, British Africa, Mexico and Central America, Persia, Cuba and other West Indies not British colonies.

Japan exported cotton cloth to the value of 38,511,423 yen in 1915, 34,840,761 in 1914 and 33,605,684 in 1913. Shipments to British India have increased over 100 per cent. since 1914 and only the Philippines and Hong Kong, of all the importing centers given, show a decline. Exports of various cloths show moderate increases all along the line except duck, which jumps from 821,859 yards in 1914 to 2,280,067 in 1915. Knit underclothes and towels total 8,308,097 dozen in 1915 and 7,955,232 in 1914. India, the largest single customer, received about 28 per cent. less than in 1914, while Great Britain increased from 104,380 dozen in 1914 to 1,029,985 dozen in 1915. Exports of yarn are stationary totalling 164,761,242 kin in 1915 and 165,290,923 kin in 1914. Japan's total raw cotton imports increased from 826,772,234 pounds in 1914 to 972,272,133 in 1915. In the 1915 total there is less Indian cotton but more American than in 1914. Takings of American, however, are not up to the level of 1913.

Address Wilmington, N. C.

In an item in the April 8th issue of TEXTILE WORLD JOURNAL describing the activities of the Cement Products Co., manufacturers of sewage disposal tanks, the address of the company was given as Wilmington, Del., whereas it should have been Wilmington, N. C. For the benefit of those who are not acquainted with the company we are glad to make the correction, though as far as the majority of textile mills are concerned it is very probable the correction is superfluous, as the company and its product have become widely known in a surprisingly short time.

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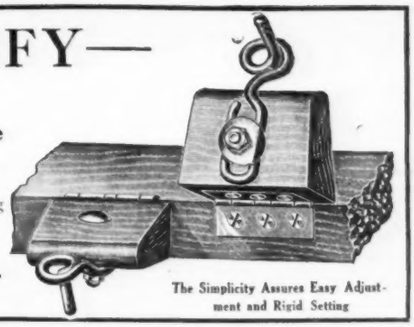

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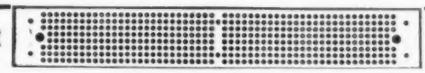

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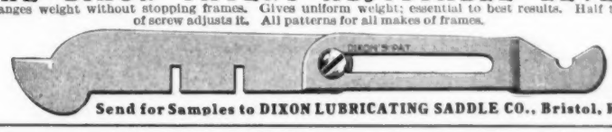

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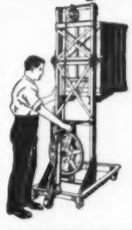

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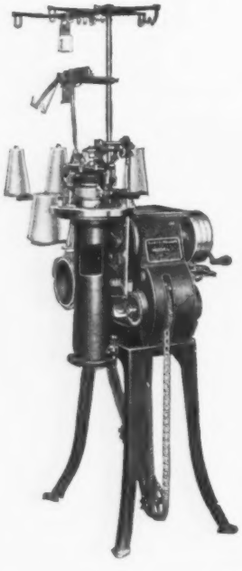

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88 Pearl Street

Boston

New York
366 Broadway

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5 Blandina Street

Raw Materials, pages 184, 185, 186

Knit Goods

Hosiery—Underwear—Sweaters—Fancy Goods

Yarn Markets, pages 174-177, 179-180

HOSIERY RISE PLACES GOODS OUT OF RANGE

Jobbers Own Goods at Great Variety of Levels—Cost of Stock Confusing to Many Distributors

Extraordinary delays in delivery, unusually high prices and many difficulties from the manufacturing end still persist in the hosiery market. Buyers are complaining that they cannot distribute hosiery which costs them such prices as mills ask to-day, at the figures which custom of many years' standing has led the retailer to expect. Nevertheless, agents say that they are making many sales of staple merchandise outside former ranges, and that consequently they believe that the retailers' fixed price method of distribution is being broken down. Jobbers themselves through their association are working to overthrow the system and they can best gain this end by accepting the situation which they find to-day in the primary market and by selling their merchandise based on present costs. A sharp rise is noticeable in children's ribbed hosiery and merchandise of this class which formerly sold about $1.05 and was distributed to retail at 15c., is now quoted as high as $1.30. A representative agent states that he has made sales of merchandise at such irregular figures as $1.17½ and $1.22½, and he assumes that when this merchandise appears on the retailers' counter it will be priced 19c. Such mill prices as those here mentoned would have been out of the question under normal conditions. Hosiery knitters who stand for quality production rather than manufacturing to fit a price, are hopeful that the breaking down of the fixed price system will continue and that conditions developed persist even when normal circumstances return.

JOBBERS' COSTS CONFUSED

The jobber who does not keep careful eye upon his buyng and selling prices, will find that he has lost an excellent opportunity for profit, if not actually involved himself in a loss. Much of the hosiery at present going to the retailer has been billed to the jobber at the low prices existing last year, and on such goods, it is, of course, possible to make low quotations. On the other hand, the jobber also has in his stock considerable hosiery bought at advances of from 10 to 40 per cent., and unless he makes a distinction he will be selling some merchandise at a loss. As it is, jobbers are to be found who are letting their merchandise go considerably below to-day's replacement figures. A representative mill agent states that one of his customers is now receiving goods from his mill billed at four different prices, representing four successive purchases on the rising market. It is this agent's advice that jobbers lump all their merchandise and price it on a basis of to-day's replacement cost. This would not only bring a desirable regularity to the market which is now lacking, but it would permit attractive profits to jobbers owning goods at last year's prices.

SHARP ADVANCES FOR FALL

A large factor in staple hosiery has lately named prices for fall delivery, which show advances of from 30 to 40 per cent. above those named a year ago. For example, women's 220-needle cotton stockings formerly priced at 92½c. are now held $1.25. Mercerized stockings last year quoted at $1.65 are now $1.97½, and another number formerly $1.75 now $2.05. Such prices as these are said to represent the present level of the market, and there are numerous mill agents with low priced orders on their books taken when they opened for fall last January, who now sincerely regret their early entrance into the field. They find present circumstances a sharp object lesson in the advantages of conservative delay on a market ruled by bullish tendencies. Mills producing women's cheap stockings are far behind in deliveries, as are also those producing children's ribbed goods. Both of these descriptions have been large factors in export trade, and prices have risen to abnormal levels. For example, a boy's three-pound ribbed stocking quoted a year ago at $1 to $1.05 is now held in some quarters as high as $1.30. The trade doubts whether much business has yet been done at this level, but present prospects are that this will be the ruling price for many months to come. The trade does not look with any great alarm upon prospects of a break with Germany. This would be a regrettable occurrence from many points of view, but agents doubt that it would exert much of a bearish influence upon their market; in fact, many believe the effect would be quite the reverse and that a bullish trend would be maintained.

HOSIERY TRADE NOTES

H. E. Schwarz who has an office at 395 Broadway is direct representative of Salomon Stern, Ltd. of London, and buys hosiery, underwear and fabric gloves for that concern.

Women's and children's hosiery have figured more prominently in overseas demand than other lines and mills are two to four months behind schedule on delivery.

Ribbed hosiery in the 1 x 1 and 2 x 1 rib is the standard American construction and inquiries from abroad for goods with wider wales cannot be satisfied on this market.

Stockings of wide wale with sewed welt and with the ribs running down to the toe have been popular in England for women's wear. They are not made as a regular thing in this country and mills now have such a good business on staple numbers that they are not anxious to take up specialties of that sort.

The high prices named on certain lines of hosiery are interpreted by part of the trade as shutting out the domestic buyer and as practical only so long as export buying is vigorous. Nevertheless it is an interesting fact that much hosiery is now being sold out of regular ranges.

Merchandise formerly sold from mills at about $1 for 15c. retail, have been advanced to $1.20 to $1.30. The rise warrants retailing at about 19c., but it is said that some of this merchandise is being jobbed to retail at 25c. where its appearance makes it possible. Jobbers who are successful in accomplishing this should have no complaint over the season's possible profits.

Many agents have found that goods advanced beyond a certain point might just as well be advanced still further as they are lifted from one range into the next above. If the arbitrarily fixed price scheme is done away with, this abuse will not be possible, but goods will sell strictly on a quality basis.

BUILDING AN EXPORT TRADE

Successful Methods Employed by Leading Philadelphia Textile Firm

Opportunities for export business in domestic textile products have been steadily increasing since the opening of the European war, and those American concerns which were ready to meet this emergency have established valuable connections abroad which are developing along broader lines every week. Demand for hosiery and underwear from all quarters of the globe to replace goods formerly shipped from Germany, has resulted in good sized orders from the United Kingdom, as well as from the Continent and South America, while at the same time there has been a growing demand for other textile products, including cotton and wool piece goods, muslin, underwear and other ready-made garments.

One of the houses which was equipped to handle this opportunity for business in export fields was Young, Smyth, Field Company, Philadelphia. This firm was established in 1842, and is a large operator in hosiery, underwear, textiles, gloves, ribbons and various lines of furnishing goods. About three years ago special attention was first given the possibilities offered by export trade, and a subsidiary organization, known as the Smythfield Export Co., was formed to act as an export department for the house. Percival G. Buerk is the manager of this department, and under its direction there has been a constant growth in its activities, so that to-day the department is one of the most important in the business of the firm.

In building up this far-reaching trade which touches every quarter of the world, the company secures direct connections with established houses in the various countries to act as their special agents, having found this to be the most effective means of securing lasting results. Through these salesmen are maintained in all parts of the world where there is a demand for textiles, with headquarters in the important cities.

LARGE TRADE IN UNITED KINGDOM.

For example, in England, through the acknowledged assistance and co-operation of the TEXTILE WORLD JOURNAL, they have established a close connection with a most progressive house in Manchester and made an exclusive arrangement with them for handling American-made goods. Through means of this close alliance they have been operating most successfully throughout the United Kingdom, from their headquarters at Manchester, with important branches at London, Liverpool, Glasgow and Belfast, and business generally has been steadily increasing on a wide range of goods; in fact, the business done throughout the United Kingdom has proved one of their largest fields for export. Hosiery and underwear form the largest part of this trade, and it is their opinion that there is a good opportunity for American trade to hold this profitable market for all time. There is also good business being done of late in cotton piece goods, which is a new development; also in muslin goods, in manufactured products such as night gowns, and in curtains.

On the Continent a satisfactory busi-

(*Continued on page* 163)

SPRING UNDERWEAR IS CENTER OF ATTENTION

Slight Irregularities in Present Condition of Mills—Why Open Early on a Sellers' Market?

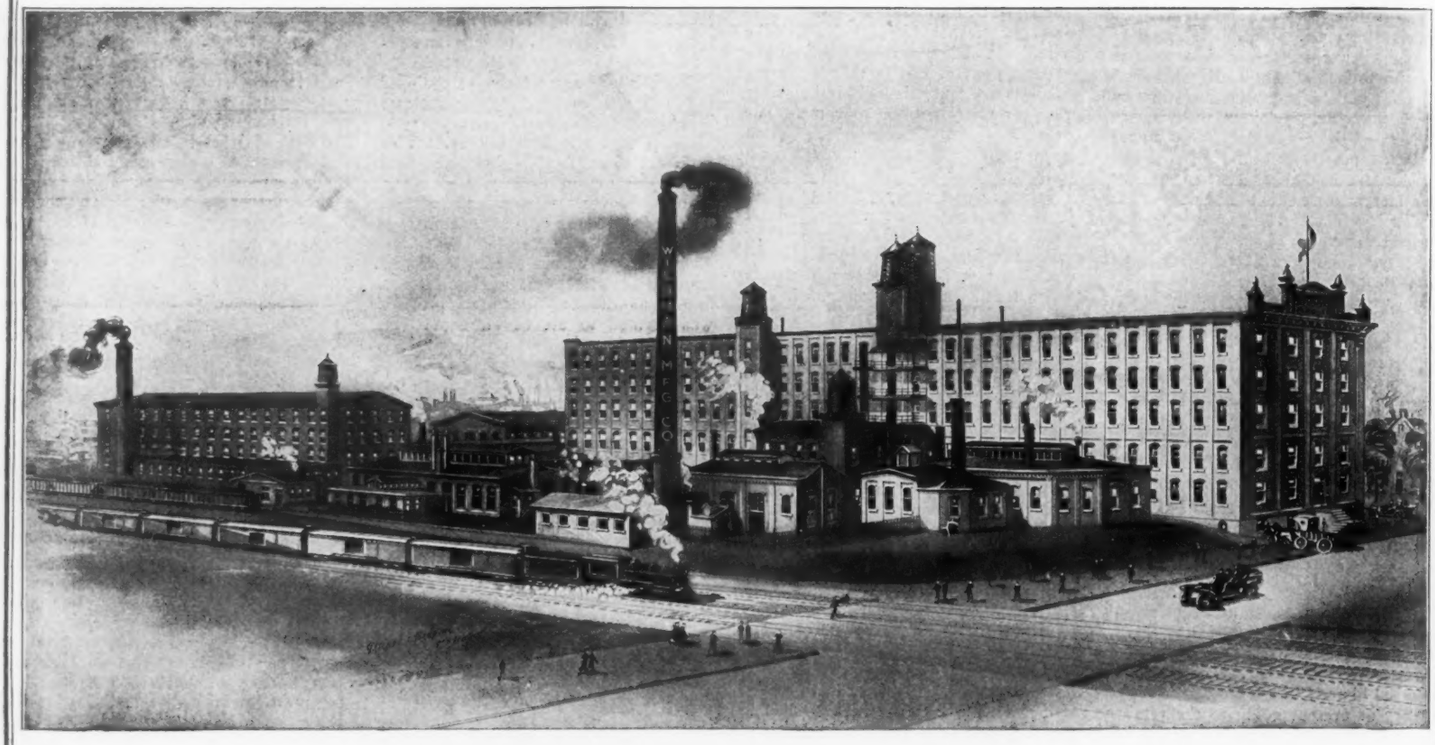
The spring season, immediate and prospective, is occupying the attention of the underwear trade at the present time. As is naturally true of a period when policies are being formulated, much is being said and thought on all sides of pertinent questions. The political aspect of the situation is being given less consideration than would be given were all other influences normal, and it would never be apparent from market conversation that a presidential campaign is so near at hand. Raw cotton is not being given the attention that is usual, for labor costs, productive capacity, price of trimmings and chemicals and the status of the jobbing and retailing trades are the factors which are overshadowing everything else. The prospect of a break with Germany does not appear as a bearish influence in underwear circles. Such an event would further tighten an already severe labor stringency, agents believe, and stiffen the price of chemicals. Its effect on raw cotton is problematical. It might result in greater conservatism among ultimate consumers and so restrict distribution, but with the present predominance of demand over supply this would not be likely to make itself felt adversely. Except in the acknowledgment that the future is full of unusual possibilities and dangerous to anticipate too far ahead, selling agents are full of optimism and confidence. Their fear to anticipate is due more to the bullish than the bearish aspect of the situation.

At the recent meeting of New York State manufacturers at Utica an informal census was taken to determine how mills stood on current spring trade. With only one notable exception balbriggan mills were reported sold up, the most recent business having been taken on a basis of $1.85. The chief exception was a mill which still had a fair amount of merchandise available for delivery at a price at the time of the meeting said to be $1.72½. One other mill reported room for a few new orders and still another was said to be sold up to June 15. The others announced themselves as sold up to July 15 or completely withdrawn for the season. Mills which have lately been asking $1.85 are of the opinion that $1.90 is a necessary price on their product for spring, 1917. Regarding time for opening, agents who frequently get out on the road among the earliest are talking conservatively this year, stating that nothing will be done before the Manufacturers' Association meeting in Utica on May 10 and forecasting that that meeting will probably be adjourned to a later date and that nothing will be done by the trade as a whole until after June 1.

MARKET IN SELLER'S HANDS

The fact that sellers rule the market to-day is given as an argument against an early opening. It is asked why mills with orders for light-weights on their books sufficient to run them to the middle of the summer should get out earlier than usual with merchandise for spring, 1917. The fact that jobbers have been seeking to place orders for next year indicates that it is their opinion that

F. B. WILDMAN
President and Manager



WILDMAN MFG. CO.

MANUFACTURERS OF

Circular Rib Knitting Machinery

AUTOMATIC STOP MOTIONS
ELECTRIC CLOTH CUTTERS

Norristown, Penna. - - - U. S. A.

KNIT GOODS—Continued

such buying would be advantageous to them and a manufacturer should look the situation over several times to make sure that such selling would prove advantageous to him. There is more conservatism in market conversation this week than at the beginning of the month despite rumors of isolated instances of business accepted on the new season's account. Sellers of heavyweight cottons have placed themselves in an enviable position with regard to future business and mills have their work mapped out for them for the rest of the year. Several mills have withdrawn lines entirely and others state that there is not the usual remainder left for duplicates.

UNDERWEAR TRADE NOTES

Nainsook underwear is being sold for spring, 1917, and fair advances are being secured. The $1 union suit of one well-known brand is said to be priced at $5.85 against $5.50 which was asked last year.

One mill, which is essentially a producer of knit underwear, is offering a line of nainsook garments this year. The price lately named on the union suit is said to be $6.

The prospective advance in 25c. balbriggans amounts to about 25c. per dozen over the figures named at opening last year. This affects the higher grade merchandise more than the low end.

Such garments as opened at $1.55 last year, which was about the bottom of the market, would be $1.80 on the above basis, a price which would not make them difficult to distribute as 25c. retailers. The garments which last year were held for $1.75, however, would reach $2, with a corresponding advance, a figure which it can be said in advance, jobbers will object to as eliminating the profits in distributing 25c. merchandise.

The question of cheapening goods is being considered, but this is not a practical step for mills which have gained a reputation for a particular quality.

It is said that the only practical means of cheapening a balbriggan is by change of gauge or weight of fabric or by reducing the labor cost. The trimming, buttons, etc., are too small a matter per dozen garments to make a sufficient difference in cost to justify cheapening them.

Manufacturers face a difficult problem here because a change in fabric would involve many troublesome details regarding machinery and yarn, and labor costs have already been reduced to a minimum. Necessary advances in wages this season, it is feared, may overbalance any economies of production which may be undertaken.

COLOR DIFFICULTIES

Sweaters Are Coming Out in Many Unexpected Shades

Current deliveries of sweater coats are showing many unexpected variations in color which are rousing numer- complaints from jobbers. For the most part, however, it is said that jobbers are accepting the circumstances as unavoidable and taking deliveries when they discover that it is the best that mills can do. Manufacturers who buy colored yarns are frequently getting old rose instead of maroon, dark green instead of Kelly green, Alice blue instead of Copenhagen, etc. One sweater mill which bought a worsted yarn dyed maroon at $1.80 had old rose delivered to it. This manufacturer refused the delivery even when the yarn seller offered a considerable reduction in price because of the failure to come up to sample. Jobbers are taking in merchandise for fall as soon as mills can turn it out instead of waiting till later in the year, as has previously been the practise.

FIBER SILK GOODS ADVANCE

Mill agents with available lines of fiber silk goods say that the necessary stimulus has not been applied to jobbers to start additional ordering. Merchandise of this sort distributed direct to the retailer has had the best trade so far. There has, however, been advances lately, and one order taken by an agent on fiber silk coat subject to mill's acceptance at $78 per dozen was returned with the advice that the price was now $84. The market believes that before June a scarcity of this seasonable merchandise will bring many jobbers again into the market.

TRADE FOR PREPAREDNESS

Knit Goods Sellers Mustering for Parade May 13

The knit goods trade of New York is giving hearty support to the Citizens' Preparedness Parade to be held here May 13, and already many have stated their intention of marching. The knit goods division to be headed by a banner with the legend "Knit Goods—1916—Preparedness" will form on Leonard Street just east of Broadway at 10 a. m., and a prompt attendance is urged on all who intend to march.

ORGANIZATION MEETING HELD

The knit goods men met late last week at 346 Broadway to organize and appoint committees. The meeting was well attended, and it was estimated that the trade will muster 750 men in line. Roger W. Allen, secretary of the central organization, who addressed the meeting said that it was the largest of the preliminary meetings in the dry goods group. George H. Black, of the Blood Knitting Co., was elected chairman and marshal of the knit goods division; James E. Malone, Jr., secretary; C. C. Valentine, Jr., treasurer, together with Charles Van Ness, W. G. MacGlashan and Harry Jacobson, finance committee. D. H. Standish and I. C. Collier were named as executive committee. The secretary is now canvassing the market for the number of those who will march, and circulars were sent out to the trade through the TEXTILE WORLD JOURNAL's bulletin service giving information and reply postals. The knit goods division will have a banner, a band and each man will carry a small flag.

BUILDING AN EXPORT TRADE

(*Continued from page* 161)

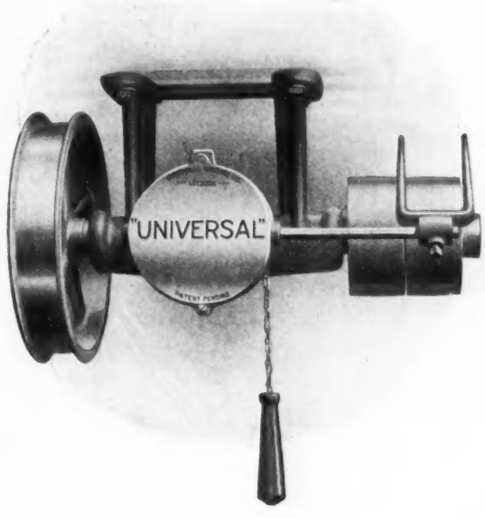
ness has been built up in Holland, Norway and Sweden, where close connections have been formed with old established houses. France is also fast becoming a factor. Here again hosiery and underwear prove to be the largest items.

TRADE WITH SOUTHERN COUNTRIES.

Cuba, the British West Indies, the Guianas and Panama were the first countries ever canvassed by the company, inasmuch as they were near at hand and promised immediate returns. Business was at once secured and South American trade has developed along similar lines. Here the bulk of the trade is in hosiery, cotton piece goods and underwear. Muslin made underwear is in demand from many sections, although there is also a tendency to buy cheap piece goods and make the gar-

"UNIVERSAL" COUNTERSHAFT

Efficient in use with any type of machine subject to frequent stopping and starting.



SHOP LEESONA MARK

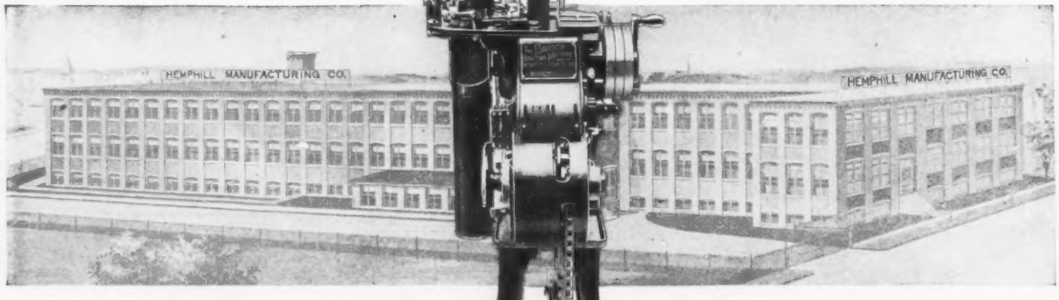
UNIVERSAL WINDING CO.
BOSTON

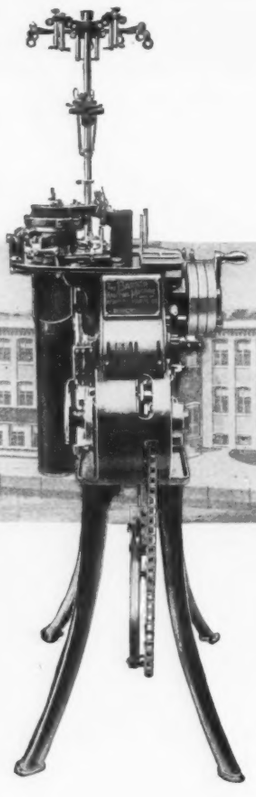
BANNER

FULL AUTOMATIC

HOSIERY MACHINES

MORE THAN 24,000 IN SUCCESSFUL OPERATION





THE BANNER — TRADE MARK — ALWAYS FIRST WITH THE LATEST

THE BANNER — TRADE MARK — ALWAYS FIRST WITH THE LATEST

Standard Gauge
260-3 3/4"

Extra Fine Gauge
280-3 1/2"

FULL AUTOMATIC HOSIERY MACHINES

These new machines have made possible the success of new lines of extra fine gauge hose and half-hose.

Many leading mills of the country are now largely equipped with these new machines, and their absolutely successful operation has been demonstrated.

ALL PARTS ACCESSIBLE FROM FRONT OF MACHINE

Write for particulars and samples of work.

HEMPHILL MFG. CO.

PAWTUCKET, RHODE ISLAND

Over 24,000 Banner Knitters in Operation

Over 100 Machines Completed Weekly for Home and Export Markets

ments up as needed in several countries where there has been less development. In cotton goods high grade fabrics have been very successfully marketed, including batistes and voiles, both woven, patterned and printed.

ADVANTAGE OF SPECIAL PACKING

The company maintains its special style of packing goods. Their boxes, with the familiar gray paper, artistically decorated with the monograms "YSF Co." have become well known to the trade throughout the world. Their lines of hosiery are sold under the trade-marked name "Quaker Maid," while in underwear the "Smythfield" brand is widely known. The use of these trade-marked goods of dependable grade and quality has played no small part in developing the business of the firm, and indicates the importance of this asset of modern business.

While seamless hosiery has been chiefly in demand for export, full-fashioned goods have also their demand. In underwear, separate garments have been the rule, although in ladies' goods there has been a fair demand for union suits, or as they are known, combinations, both knitted goods and made-up garments of muslin are required, according to the source of the demand.

ALSO HANDLES TEXTILE MACHINERY

The Smythfield Export Co. is also interested in the marketing of machinery, including textile mill equipment, cutting and folding machines for the manufacturing trades, chemicals, metals, iron and steel products, oils, etc. The merchandising of these products is under the supervision of Raymond K. Williams, assistant manager of the company, a man of wide experience, who has spent several years abroad studying conditions. In covering these lines the company acts as sole foreign distributors for a number of leading concerns in the United States, and through its established connections is well fitted for marketing American goods the world over. Japan, China and Russia, while not of primary importance up to the present in textiles, have proved excellent markets for chemicals. Dyestuffs, however, have not played a very important part, for the reason that they are not available, although there is an excellent demand.

BALANCED FOREIGN TRADE

It is the policy of the company to bring about an ultimate trade balance with all countries with which they enter into business relations. In other words, they plan to import the products of the various countries, sending in return American made goods, thus developing a comprehensive foreign trade which will be profitable and at the same time result in an opening of the world's markets for American goods along most satisfactory lines. It is just such a progressive policy as this which is considered necessary to take care of increased equipment of American mills, which will turn out more goods than will be required by minimum home consumption. The fact has been recognized by those who have studied the ever changing conditions of American industrial life that this reason for the development of a foreign trade is absolutely essential to its commercial and industrial prosperity.

New American Agent

George W. Smith, superintendent of spinning at the National and Providence Worsted Mills, Providence, of the American Woolen Company, has, according to the promotion system of the company, been appointed agent of the mills to succeed George W. Harris, resigned.

EDUCATING THE CONSUMER

Methods Adopted by Iowa Retail Clothiers' Association

Efforts are being made by the Iowa Retail Clothiers' Association, with headquarters at Des Moines, Iowa, to educate the consumer in various matters connected with the manufacture of textiles and clothing. Extracts from the resolutions adopted at the 1916 convention of the association referring to advancing prices, the dye situation, truthful advertising, and the wool supply, have been attractively printed on a large card, which it is hoped members and others will frame and hang in conspicuous places. Extracts from the resolutions referred to are as follows:

Through careful and thorough investigation we have knowledge that, because of continued heavy advances in cost of dyes, wool, and every other material entering into the manufacture of clothing, prices of clothing of all kinds are sure to advance very materially in price. This information furnished early to our members enables them to secure their stocks for Fall 1916 before the full anticipated advances, thereby protecting the consumer's interest.

Because of a very serious shortage in the supply of standard dyes due to the impossibility, because of the war, of securing supplies from the usual sources and to the inadequacy of the domestic supply, a portion of the wearing apparel sold by every merchant this fall will be dyed with fugitive dyes. Members of this association pledge themselves to secure the best material obtainable.

To the end that a greater supply of wool be produced in this country this association pledges itself to continue its efforts of the past year in endeavoring to create interest among the farmers of our state in a more general raising of sheep, and pledges its support to any practical movement having that object in view.

The members of this association are vitally interested in clean and honest advertising. They endorse the work of the National and Iowa Vigilance Committee of the Advertising Clubs and pledge their hearty support to those newspapers that co-operate with these organizations.

QUESTIONS AND ANSWERS

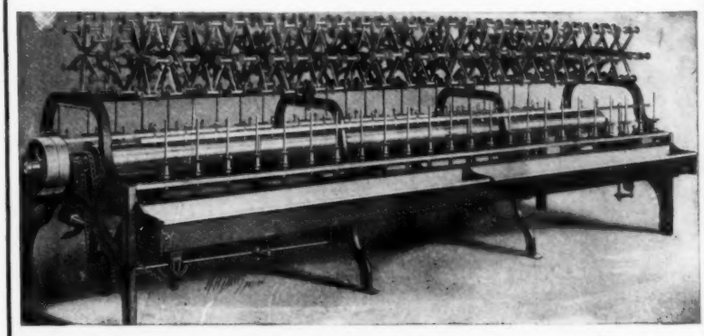
(*Continued from page* 153)

refers to the dyeing of cotton in skeins. Sulphur blacks when properly dyed do not crock. Some sulphur blacks are more soluble in hot water than others, and the use to which the dyeings are put determines the dye to use. To dye a sulphur black properly requires that the cotton should be clean, that the volume of the dye liquor should be about twenty times the weight of the cotton to be dyed, that is, 100 pounds of cotton should be dyed in 2,000 pounds of water. As a rule, the dyeing should proceed for from one-half to one hour, and close to the boil. Then lift and rinse immediately after lifting. This injunction, if observed, removes the possibility of the goods crocking.

The reason for this crocking is as follows: All sulphur blacks are liable to oxidize, therefore, if the yarn as lifted from the dye bath is allowed to hang around exposed to the air, oxidation sets in, and a precipitate forms from the excess of mechanically adhering dye liquor. This preciptate attaches itself to the yarn as a fine powder, extremely difficulty to remove by subsequent washing, and it is that deposit that shows as "crocking." It may be reduced by repeatedly washing the skeins with soap, but cannot be entirely removed.

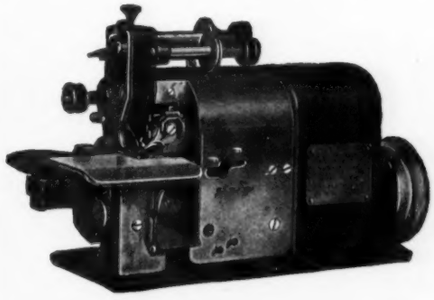
BETA NAPTHOL.

EASTON & BURNHAM MACHINE CO.
PAWTUCKET, R. I.
HIGH SPINDLES SPEED

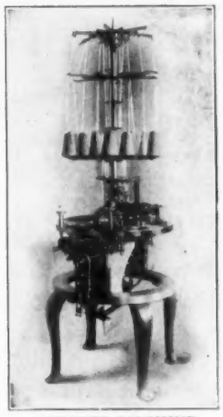


IMPROVED UPRIGHT SPOOLERS
TO SPOOL FROM COP, SKEIN OR BOBBIN
J. H. MAYES, Charlotte, N. C., Southern Agent

USE THE MERROW
OVERSEAMING MACHINES



For finishing fabrics in
One Operation
THE MERROW MACHINE CO.
HARTFORD, CONN.
—Showrooms—
467 Broadway, New York
6th & Arch Sts., Philadelphia
815 W. Van Buren St., Chicago
1019 E. Baltimore St., Baltimore, Md.



SWEATER MACHINE

Sweater and Toque Machinery

We announce to the knit goods trade that both our new Latch Needle Sweater and Toque Machines, after severe and protracted tests, have proven unqualified successes.

Sweater machines knit plain, half, and full cardigan, stripe, rack and have separating course.

Toque machines automatically stripe three colors on ribbed fabrics.

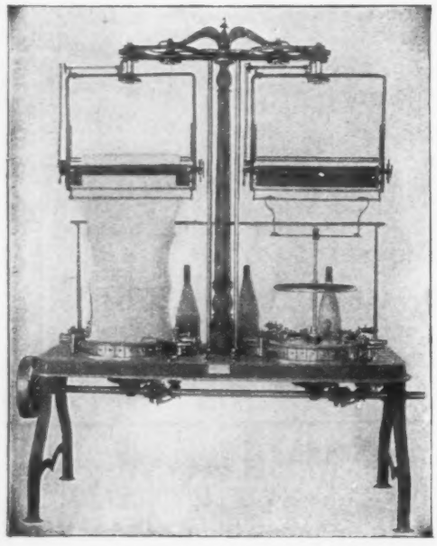
TOMPKINS BROS. CO.
TROY - - N. Y.
Established 1846

FRIEDBERGER-AARON MFG. CO.
Leading Manufacturers of
BRAIDS and EDGINGS
for trimming Knit underwear
MILLS: WAYNE JUNCTION, PHILA.
Post Office Address: Logan Station, Philadelphia

Crane Spring and Latch Needle Knitting Machinery

For Both Rib and Plain Work

ECONOMICALLY PRODUCING A GREAT VARIETY OF FABRICS



Improved Spring Needle Underwear Machine

SOME CRANE FEATURES

Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20 in. and 32 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

Improved Spring Needle Underwear Machine with Automatic Take-up

This machine is made in sizes from 13″ to 22″ in diameter of any desired gauge, the number of feeds depending on the size of cylinders.

Also built in sizes from 2½″ to 32″ in diameter for the production of a great variety of fabrics.

Aside from the feeds for plain fabrics, the ***stockinet, eiderdown*** and ***astrachan*** feeds are superior to any on the market.

WE INVITE YOUR CONSIDERATION OF OUR

Spring Needle Rib Machine
For producing the finest possible grades of Ribbed Underwear

Improved Automatic 3 Color Plain Striper
For Bathing Suits, Theatrical and Athletic Goods

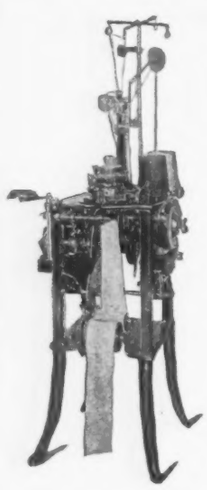
Improved Automatic Toque Machine
Latch Needle Striper with Crawford Stop Motion (if desired)

Their many features described in our catalog Shall we send you a copy?

CRANE MANUFACTURING COMPANY

Established 1870 — LAKEPORT, NEW HAMPSHIRE — Incorporated 1890

If We Made Shoe Pegs We Would Make The BEST.



We Use the Same Principle in Making

"ACME" Hosiery Knitters

We make the best because:

They give the greatest satisfaction.
They last through the greatest service.
They produce the biggest product.
Their product is the highest quality.
They earn their owners the biggest profit.

Buy the "ACME"

OUR LATCH NEEDLES
Are of Finest Quality and Finish.

ACME KNITTING MACHINE & NEEDLE COMPANY

FRANKLIN, N. H.

CHARLES COOPER'S
Machine and Needle Works

BENNINGTON VERMONT

G. H. ROGERS, Representative
838 Lancaster St., Albany, N. Y.

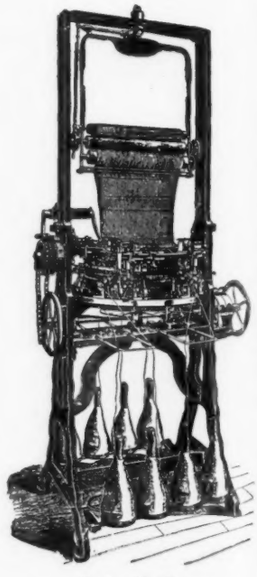
Spring and Latch Needle KNITTING MACHINERY

STANDARD FOR

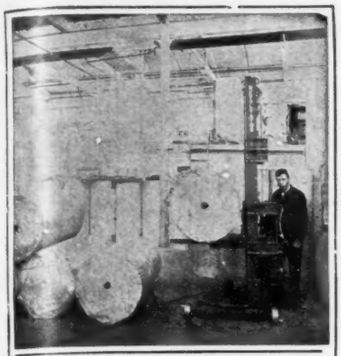
Plain Ribbed, Circular and Flat Underwear
Shirt Cuffs
Drawer Bottoms

Rib Cuff Cutting Machines
Burr Wheels and Burr Blades
Balmoral Collarette Machines
Automatic Rib Cutting and Folding Machines

SPRING AND LATCH NEEDLES



Spring Needle Rib Top Machine.



How to Pile ROLLS!

Rolls of any kind of material may be piled quicker, better, cheaper, safer than by the main strength method if you use the

REVOLVATOR Reg. U. S. Pat. Off.

Write for bulletin T. W.-27

N. Y. Revolving Portable Elevator Co.
340 Garfield Ave. Jersey City, N. J.
187

50% Better than ever from YOUR standpoint

SEVERAL NEW FEATURES

have been added to the "1912" Cloth Cutting, Folding and Winding Machine which add at least 50 per cent. to its value to YOU.

It will cut your cloth—fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine.

It saves time, labor, machine and cloth.

YOU ONLY NEED ONE MACHINE where before it required two, and you get an extra strip from every bolt of cloth.

It cuts the corners of expense in every way, and leads to more and greater profits.

THE ENORMOUS SAVINGS WILL INTEREST YOU.

J. A. FIRSCHING
614 Broad St., Utica, N. Y., U. S. A.
Dept. "B"

FULL AUTOMATIC KNITTING MACHINES

Yarn Changers and Platers
For Seamless Hosiery
Easy Transfer
Accurate Measuring Device
Produces Finest Fabrics

PAXTON & O'NEILL
3rd and Green Sts.
PHILADELPHIA, PA.

PROMPT SERVICE RIGHT PRICES

BONE DRY HOSIERY FINISHING BOARDS
THAT WORK ABSOLUTELY SMOOTH

JOS. T. PEARSON
1825 E. Boston Ave. Philadelphia, Pa.

SPURTS OF ACTIVITY AS RAW SILK DECLINES

Further Fall of 20 to 35c. Per Pound in Japanese Stock—Other Markets Are Quiet

Last week's decline in Japanese silk has been followed by additional losses within the last seven days of 25 to 35c. per pound. Kansai Double Extra Cracks are now held for $5.50, a figure 25c. lower than the price last week, and $1.10 lower than the top of market touched about five weeks ago. Shinshu No. 1 has fallen 30c. since last week, and is now held at $4.55. Prices on other descriptions show an irregularity of decline, which seems to indicate that they are settling to a basis determined by present demand and prospective new crop supply. At these lower prices considerably more business is being done than has been put through for many weeks. Monday is reported to have been a particularly active day in Yokohama, one reason for which is given in the fact that a fast steamer was taking in shipments for an early sailing date, but Tuesday was quiet again. Stocks in Yokohama are estimated at about 10,000 bales, the same figure as given last week. Daily receipts from the interior are much larger than during March, and this fact is maintaining supply in a more healthy relation to demand. Importers cannot make any forecasts as to the future trend of prices. They are interested in the immigration controversy, which is being renewed between Japan and the United States, and they feel that if this becomes a crisis of importance it will, without question, have an unsettling effect upon the silk market.

Few cables are coming to hand from Italy, and in view of the lower prices quoted in Japan, the Italian market, which is relatively firm at prices near the top of the rise, is rousing little interest from American manufacturers, Milan quotes Grand Extra Classicals at $6.25, and Classical Italians at $5.90. The prices quoted below show a decline of 5c. from last week. At present there is little American activity in Canton, and XXA Crack 14/16 of the new crop is quoted at $4.05. Shanghai quotes Blue Dragon Flying Horse $4.50, and this market also is not gaining much interest from the American buyer. Japan's lower prices have, without doubt, made Yokohama the present center of interest in the silk trade, and many manufacturers are more willing to buy now than they have been at any time during the year. If there were more trustworthy evidence that prices would not continue downward this buying would doubtless be of even great volume. Below are prices current on raw stock:

EUROPEAN.

Grand Extra Classical Piedmont	6.25
Extra Classical Italian 12/14 to 12/18	6.10
Best Classical Italian 13/15 to 24/26	5.95
Classical Italian	5.90

60 days basis.

JAPAN.

Filature Kansai Double Extra Crack	5.50
Filature Kansai Extra 13/15	5.15
Filature Best No. 1 Extra 13/15	5.00
Filature Best No. 1	4.90
Filature Kansai No. 1 13/15	4.60
Filature Shinshu No. 1 13/15	4.55
Rereels No. 1 13/16	Nominal
Rereels No. 1½ 13/16	Nominal
Rereels No. 1½ to 2	Nominal

6 months basis.

CHINA.

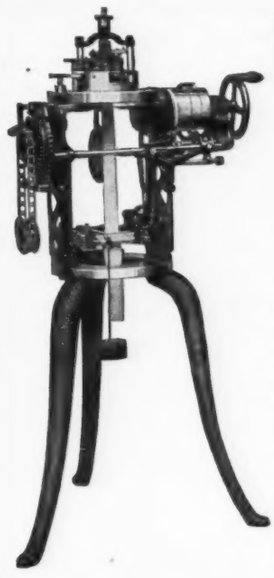
Canton XXA Crack 14/16, new	4.05
Canton XXB Ordinary 14/16, new	3.95
Canton XXB 22/26, new	3.65
Tsatlee Blue Dragon Flying Horse	4.50
Tsatlee Kunkee Mars No. 1	3.75
Tussah Filature 8 cocoons No. 1-2	2.20

6 months basis.

SPUN SILK

Spun silk is quotably unchanged from the prices asked during the last few weeks. The decline in Japanese silks is the buyers' strong argument for lower

(Continued on page 177)



H. Brinton Co.
PHILADELPHIA, PA.

RIBBERS

Single and Double Feed

with all latest improvements, such as Welt and Slack Course Selvage Welt, French Welt, Dogless attachment, Double Knee, Two-speed Drive, Yarn Changers, Automatic Stop-motions.

Built in all sizes, for all classes of rib work.

Samples and prices on request.

CONTINENTAL LATCH NEEDLE CO.
NEW YORK
THE WORKMANSHIP AND QUALITY OF OUR GERMAN NEEDLES ARE UNSURPASSED OUR SCREW RIVET DOES NOT GET ROUGH OR LOOSE
LARGE STOCK OF NEEDLES FOR ALL AMERICAN AND FOREIGN KNITTING MACHINES
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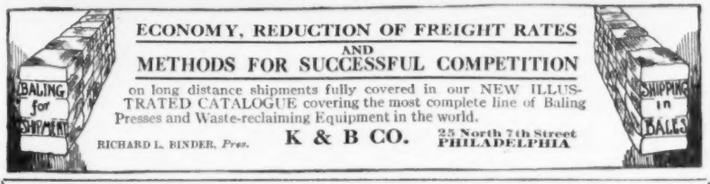
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Silk Cases Postponed

WASHINGTON, April 24.—The Federal Trade Commission has announced that the hearing set for May 8, in the silk cases has been postponed until May 10. No reason is assigned for the change in the date.

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Raw Materials, pages 184, 185

Wool Manufactures

Worsted and Woolen Yarns pages 179, 180

Machinery—Processes—Fabrics—Costs—Market Reports

HIGH PRICES NAMED CHECK MANY DUPLICATES

Reports of Business Done for Next Light-Weight Season at Radical Advances

On the surface and generally speaking the men's wear market is apparently very dull. There is no general evidence of desire to place duplicate orders, and yet in certain quarters a very fair inquiry on a few lines is noted. There is a continued evidence of satisfactory business, as far as the clothier is concerned, and yet there is a disposition on the latter's part to proceed cautiously on further operations. There are two reasons for this attitude on the part of the clothier. In the first place, the prices which have been named by the selling agent on additional business are so high in many instances that they absolutely force the buyer to refrain from operation. In the second place, the refusal to place duplicate business is regarded as only temporary, for it is realized that a readjustment must be made with the clothing salesmen, full information being given him as to the amount of garments he can sell at the original price and the new level to which he must go if additional piece goods are purchased. As a consequence it is felt that where refusals on the part of the buyer to accede to the new price asked are in evidence, they may result later in willingness to operate based on actual sales made by the clothier.

REPORTS OF SPRING BUSINESS

For several weeks there has been growing evidence that goods have been offered for the next light-weight season. This has not been a general practice, but reports from various markets throughout the country indicate that business has been done for the coming selling period. This business has been of two kinds. New lines of fabrics have been shown in a few instances. These have been on the part of mills who either are well covered on their raw material because of large financial ability to make forward contracts, or in the case of a few mills—unusually few for such a period—who have not had an invariably successful season and who are willing to book forward business in order to keep their machinery running. In the latter case there are certain prices reported which seem to be unusually low, considering circumstances. Also it is true that very few are willing to follow this lead and show entirely new fabrics for another season before they know more than they do at the present time about probable costs. In this class of materials the sales which have been made are confined almost absolutely to staples and semi-staples and the volume of business transacted has not been very large. It is true that offers for a very considerable yardage have been made and were the seller willing to consider them, the volume of trading would be on a very liberal scale. There is no desire, however, on the part of the manufacturer to accept the figures which are offered as a general rule.

On the other hand it has developed within a few days that in certain instances, last light-weight styles have been shown to large operators, and if reports can be believed, more or less business has been done. Certain western book houses are said to have placed a very fair proportion of their orders for the next season on old styles at an advance ranging from 37½ to 45c. a yard. Deliveries on these goods are promised for July and August and in a few instances even later. But it can hardly be regarded as an evidence of showing for another season. As a matter of fact, where new lines are gotten out, entirely different from those previously shown, it is the general opinion that the showing will be later than usual even before any formal opening is made, while the latter development is likely to be delayed for an unusually long time.

DELIVERIES DELAYED

It is apparent that in the great majority of instances bulk deliveries on merchandise for the heavy-weight season are unusually backward and are likely to become more so as the season advances. Buyers are pressing for delivery, but without general success. There is much to excuse the manufacturer for being behind-hand, but while the buyer realizes this fact it is not helping him out in his needs and he is doing everything possible to secure at least a fair proportion of his orders. As the season continues there is less and less evidence that the buyer is going to receive his full quota of merchandise. Were this possible it would be only correct to say that he would have a surplus, but no one predicts any large unsold stock of merchandise in the clothier's hands for the coming fall season. Of course, it is realized that a good many things may happen between the present and the time when this merchandise is cut up and distributed by the wholesaler and retailer, but there is nothing today that would seem to indicate an abnormal supply.

MEN'S WEAR TRADE NOTES

Considerable has been said about orders which have been booked in the men's wear trade for the next light-weight season. A good deal of misinformation has been disseminated and more or less exaggeration has characterized the statements made public.

Nevertheless, in spite of the uncertainties of the future and the difficulties surrounding the fixing of prices it is evident that more or less business has been done in a quiet way.

One fabric which has caused considerable comment has been brought out to sell at $1.22½. It weighs a trifle over 10 ounces and is an all-wool, semi-fancy piece dye of the pencil stripe order. It is said that something over 1,500 pieces have been sold to date. It can be imagined that it is not a high-class fabric at this price and would be pretty difficult for the majority of clothiers to handle.

Ordinarily at this time of year there are a number of mills which have not been successful for the current season who are anxious to book forward orders to keep their machinery running. This is the case in only a few rare exceptions this season.

Reports from Chicago indicate that certain book houses have placed a very fair proportion of their light-weight season's requirements on last light-weight season's samples. These orders are for comparatively early delivery, but are not from stock and will have to be made.

Other manufacturers who have been

(*Continued on page* 181)

CARPET MEN PUZZLED

New Prices on Monday but Level Cannot Be Forecast

The carpet situation of last week has not been clarified and the trade is still awaiting some announcement from the dominant factor. During the week several more companies announced their openings for May 1, evidently despairing of an announcement from the Smiths. At present Alexander Smith & Sons Carpet Co., and Stephen Sanford & Sons, Inc., are the only large companies which have made no announcements, although they were confidently expected to do so the latter part of last week. Unless there is action in the next day or two, sales managers expect these companies quietly to accept the situation as it is and to show their new samples and announce new prices May 1.

Certain elements of the trade are inclined to speculate on the outcome if these two companies should decide to have a later opening. Some believe that in this event most buyers would hold off until the later opening and take a chance on getting everything required at that time. Others hold to the opposite view and think buyers will flock here, buy everything that appears reasonable and take no chance on the later sale. All agree that there may be price adjustments after the later opening, but think the revisions can easily be made to the entire satisfaction of the buyer.

Not in the memory of the oldest carpet dealer has such an unusual situation existed just before an opening. Heretofore with an opening so near at hand, dealers have had their price list fully completed. Prices this year are, however, more or less problematical, but one of the solutions will be announced Monday. One dealer this week said he had his price-list made out, but found changes necessary each day, and he could not forecast the result. Another unusual situation is the amount of business going on the week before an opening. Buyers are here from all parts of the country, and are taking everything offered at reasonable figures. They are buying heavily in anticipation of enhanced values for the new season.

Manufacturers show no inclination to accept orders for goods which they cannot manufacture within the next two months. This is another unprecedented situation. Manufacturers are trying to keep within the limits of their raw materials, and they feel that the raw material situation does not justify their taking chances on the future. One well-known carpet house, which is accepting orders only on goods they can manufacture before June 30, had to turn down an order this week for 8,000 rugs, as they could manufacture only 2,000 before that time.

Imported rugs are not as plentiful as formerly; the stock of one big factor is estimated to be about 30 per cent. of normal. Persian rugs are not being received because of the war, although there are reports of shipments which will arrive and be ready for the fall opening. Certain men doubt these reports, saying they have been fooled by like rumors before, but importers assure them they are authentic this time. Business in Persian rugs is practically dead. There are no small rugs available and only a few large ones.

DRESS GOODS SELLERS FIGHT FABRIC REFUSALS

Cancel Orders Where Deliveries Are Not Accepted—Prophesy Later Demand at Higher Prices

The all-absorbing topic of conversation in the dress goods market continues to be the promised lockout of cloak and suit operatives to-day. At this writing official effort is being made to prevent trouble, but there seems every evidence that the promised difficulties will materialize. There is a growing feeling, however, that, as mentioned in this column last week, the trouble will be short lived and that cutters will use every endeavor to relieve the situation at the earliest possible moment.

FIRM STAND OF SELLERS

It is a significant sign that the large majority of selling agents doing business with the cloak and suit trade have taken a firm stand against the attitude of the buyer in refusing merchandise. The course of procedure has been that where a buyer refuses delivery he is told politely but firmly that his order is cancelled. Of course, there are exceptions to this rule, where the seller has submitted tamely to the demands of the trade, and has expressed his willingness to accept delayed deliveries or even cancellations. To the credit of the trade, however, be it said that there is a growing feeling that the present affords an opportunity to fight unjust demands on the part of the buyer.

BUYERS MAY BE FOOLED

It is felt that if there were ever a time when it was inopportune for the manufacturing trade to attempt to squirm out of their orders it is the present. There is no question but that in many instances manufacturers are very glad to be relieved of a certain proportion of their orders. They feel that merchandise will be needed later on and are willing to wait until the rush comes when it is expected that considerably more can be obtained than was the case when original orders were placed for the fall season. In not a few cases, where both dress goods and men's wear are made by the same mill, the manufacturer hails the opportunity to increase his product of the latter by shutting off any further production of women's wear fabrics. The unprecedented demand for men's wear lines has resulted in backward deliveries and the necessity of cutting down orders taken. Refusal to accept merchandise by the cloak and suit trade is regarded in more than one quarter as a godsend, and therefore there is no general apprehension over the situation.

BELIEF IN HIGHER PRICES

The increased cost in labor, raw material and supplies, argues against the maintenance of present prices and gives promise of materially higher levels later in the year. With wage advances throughout New England and the Atlantic States of 25 per cent., with dyestuffs costing in many instances over 100 per cent. more than a year ago and with inability to operate machinery to capacity because of the scarcity of labor and of material the outlook does not seem favorable for the buyer to obtain a further amount of merchandise at anything like as favorable a figure as has been possible at the beginning of the season. Prophecies are not infrequent

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that the operator who owned merchandise at the opening prices of the fall season has committed an act of stupidity in either cancelling his orders or allowing them to be cancelled in view of the likelihood that later demand will make necessary the reinstatement of many of these orders which can be done only at a material advance.

CHEAP GOODS SCARCE

Cloakings at or near $1.00 are conspicuous by their absence. Anything below this figure is almost out of the question, though there have been instances where the manufacturer has been willing to make up a substitute for a low priced line. Buyers admit that the intrinsic value of the fabric is by no means as great as on certain lower priced merchandise, previously bought, but still there is comparatively little complaint and the situation is being accepted philosophically if it is possible to obtain anything that will serve the purpose.

DRESS GOODS TRADE NOTES

A good many cloak and suit houses who have endeavored to have deliveries on goods postponed or certain lines cancelled, when informed that if they did not accept deliveries as tendered their entire order would be cancelled, have reconsidered the matter.

To others it has been pointed out that they own merchandise at a very favorable figure and if they cancel now they will have to pay more when they want the goods later. This argument has been sufficient with many to bring them to terms. A seller prominently identified with the cloak and suit trade declared yesterday that the man who cancels goods at $1.30 will pay fully $1.50 when he wants them badly in the fall.

And it is prophesied that there will be a rush for merchandise on the part of this trade in the fall months, following the precedent of past years. It is argued, therefore, that it is only a matter of preparedness to keep what has been bought at a comparatively cheap price. Last year the cloak trade bought little early merchandise; they kept promising orders from month to month, but they did not materialize until well into the fall when everything came in a rush with the consequence that no one was satisfied. It looks as though they were preparing for a similar experience this year.

Sellers admit that some of the goods which they are selling around $1.10 are not worth the money, based on what could have been obtained during past seasons at this price. At the same time buyers are not complaining if they need the goods.

On children's cloakings efforts to get anything below a dollar are practically unavailing. Agents find a demand for goods that have been advanced no more than 20 cents a yard, but when it comes to a 40 to 50 cent rise due to a low opening the buyer balks.

Requests for considerable lots of low-priced cloakings are being received from Canadian sources and buyers complain that they can find nothing similar to what they have previously bought at anything like the price.

Disgust at the treatment of salesmen in certain of the uptown buildings, where the manufacturing trade has gathered is increasing daily. They are not allowed to ride on passenger elevators with small packages of samples, but are compelled to wait for the freight elevator. Certain houses have instructed their salesmen not to call on customers where they are subjected to these indignities, and have informed the buyer that if he desires to see the line he can call at the agent's office.

One time buyers of imported fabrics remind us very much of the little boy who ran away from home, but soon discovered that home made bread was far better than a dried old crust from abroad.
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SLUMP IN ENGLAND'S RAG AND SHODDY TRADE

Mills Restricted by Labor Scarcity—Substitutes Are Down 4 to 7c. Per Pound

(*From Our Regular Correspondent*)

DEWSBURY, ENG., Mar. 27.—The position of the woolen goods trade generally in this district has not changed much since last report. Mills are working overtime as far as possible, though owing to the demands of the army for men it is not possible to work at the same pressure as a few months ago, for it is possible to replace the single men who took the night shift by female labor. Several mills are still working on goods for the Allies, both blankets and cloth, and at an early date more orders for the latter are confidently expected. In the meantime many mills are working their limit on the production of civilian goods and in most cases have orders which will not be completed for months to come. Caution must be exercised and acceptance of substantial orders will have to be deferred until the exact position of labor is defined. Demand for goods from overseas is fairly brisk, especially from England's allies. This is not expected to increase much because these countries will soon begin to manufacture their own civilian goods. France is reported already to have begun at such factories as are not near the war zone. Trade with the Colonies is still brisk. Among domestic clothiers the call is not heavy and they are troubled with delayed deliveries.

SLUMP IN RAGS

In the raw material market for the last two weeks, there has been a marked slump in rags and shoddies, and there are many vague surmises as to what brought this about. At the public auctions three weeks ago the former eagerness on the part of buyers was not observed but sellers refusing to give way in price, began to withdraw various lots. Slackness has become more and more accentuated until to-day at the sales most descriptions can be quoted at marked recessions. Among local mills demand has fallen away. As buyers show no interest business has been almost impossible to do, and a feeling of depression has come over all concerned. Business at the moment is on the side of speculation and there are no real prices or values. Each deal is made on its own merits and if a user is in urgent need of any line he will buy, if not, he will scarcely have it at any price. Graders are loath to buy mixed goods for they do not know what they can get for any line when it is graded. Stocks are increasing even at the curtailed rate of supply and the general state of business is as unsatisfactory as it can be from a rag merchant's point of view. The manufacturer or shoddy mill which has not covered for orders in hand is buying at to-day's reduced prices. Travellers report wretched times. They are faced on every hand with the fact that some firms have become panicky and are realizing at much reduced prices, while much of the younger element in the trade has been called to the colors and have been compelled to sell out at best prices obtainable. Buyers often find fault with deliveries and try to cancel existing orders in such times as these, but it is hoped that fair dealing will be the rule and the principle of give and take will obtain all round, each helping the other until matters become normal again. Opinions differ as to the future but all agree that prices on most lines were too

(*Continued on page* 177)

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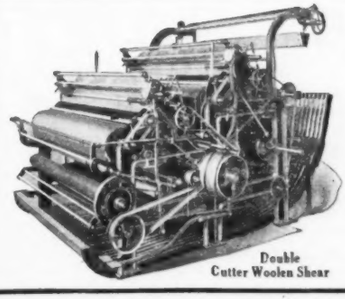
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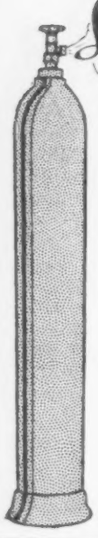

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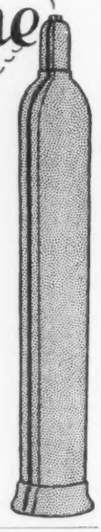

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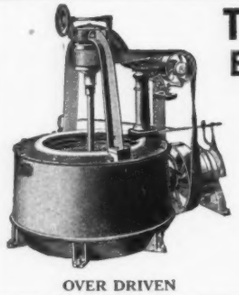

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Textile Manufacturers

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Purer whites are obtained, less tendency to weaken fibres, saving of time and chemicals.

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More level dyeings are obtained with economy of dyestuffs. Thorough degumming of previously dyed and finished goods are easily and cheaply performed.

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DYESTUFFS AND CHEMICALS MARKET

QUOTATIONS

Prices quoted below were obtained at mid-week on the New York market, and we believe them to be accurate, though largely nominal.

ACIDS.			
Acetic, 28 per cent., bbls.	3	@	10
Blue vitriol	22	@	23
Do., in carload lots	—	@	20
Citric, crystals	64	@	85
Lactic	2¼	@	2½
Muriatic, 18@20 degs.	6	@	8
Nitric, according to strength.	Nominal		
Oxalic (German)	Nominal		
Do. (Norwegian)	Nominal		
Do. (Domestic)	75	@	80
Sulphuric, 66 degs.	Nominal		
Tannin, light	1 01	@1	05
Commercial	1 06	@1	10
Tartaric, crystals	66	@	85
Powdered	65	@	80
VEGETABLE DYES AND WOOD.			
Camwood, ground	20	@	25
Cutch	15	@	25
Fustic: Solid	—	@	—
Liquid	—	@	—
Gambier (in store)	16	@	18
(To arrive)	—	@	—
No. 2 cube (to arrive)	—	@	—
No. 1 cube (to arrive)	—	@	—
Hematine paste	—	@	—
Crystals	—	@	—
Hypernic chipped	10	@	12
Indigo—Bengal	3 50	@5	00
Guatemala	2 25	@4	00
Madras	—	@1	50
Indigo extract	—	@	50
Logwood chips	—	@	—
Extract	—	@	—
Crystals	—	@	—
Nutgalls, blue Aleppo	35	@	65
Chinese	—	@	—
Quercitron, per ton	55 00	@60	00
Bark, extract	15	@	20
Sumac (high test), spot	82 00	@85	00
Do., to arrive, basis 28%	80 00	@82	00
Extract	—	@	17½
Colorless	13	@	15
STARCH AND STARCH PRODUCTS.			
Dextrine—Potato (Domestic)	3	@	10
Do. (corn), carload lots, bags	—	@3	20
Do., bbls.	—	@3	26
Do., spec., dark canary bags	—	@3	30
Do., bbls.	—	@3	36
Do. (foreign)	5¾	@	7
Gum, Br., carload lots, bags	—	@3	45
Do., bbls.	—	@3	51
Sago flour, spot	4½	@	4¾
Starch, corn, pearl, bags, carload	—	@2	25
Do., bbls., carload lots	—	@2	31
Potato (foreign)	7½	@	8½
Wheat	—	@	—
Rice	—	@	—
Tapioca flour	5¾	@	6
OILS.			
Olive oil	1 15	@1	25
Olive oil, Foots	—	@	14
Red oil, single pressed	—	@	—
Double pressed	—	@	—
Lard oil, prime burning	—	@1	10
Extra, No. 1	—	@	88
No. 1	—	@	85
Myrbane oil (drum incl)	33	@	35
Wool, Elaine, bls., per gal.	—	@	75
MISCELLANEOUS CHEMICALS.			
Acetone, pure, drums	45	@	50
Albumen—blood	30	@	40
Egg	84	@	86
Alizarine	—	@	—
Assistant	—	@	—
Oil soluble	—	@	—
Alumina-sulphate	4¼	@	5¼
Alum—lump	—	@	—
Ground	—	@	—
Powdered	—	@	—
Ammonia aqua, 16@26 degs.	3½	@	7
Carbonate	8½	@	9
Ammoniac, Sal.:			
Commercial, 99 per cent.	9½	@	10
Aniline oil	85	@	95
Salt	1 15	@1	50
Antimony—Oxide	—	@	—
Soluble, crystals (3 grades).	Nominal		
Salts, patent	—	@	—
Archil extract	40	@	45
Argols—white, plates	—	@	—
Red, powdered	—	@	—
Powdered	—	@	—
Arsenic—White	6½	@	7
Red	65	@	70
Barium chloride, per ton	$110	@	$125
Bleaching powder:			
Domestic	13½	@	15
Borax, refined, crystals and powdered, bbls.	7¾	@	8½
Chrome alum	45	@	47
Chrome—Acetate, 20 degs.	—	@	—
Crystals	—	@	—
Oxide	—	@	—
Copperas	—	@1	50
Formaldehyde	12	@	14
Fuller's earth, imp., lump, per ton	20 00	@22	00
Powdered	21 00	@23	00
Glauber's salts, crystals, bbls.	1 00	@1	25
Powdered	2 00	@2	50
Glycerine (C. P.), bbls., dms., extra	61	@	62
Cans	62	@	63
Distilled yellow	60½	@	61½
Light, yellow, crude	—	@	55
Iron—liquor, per gal.	30	@	32
Nitrate, true	—	@	—
Com	—	@	—
Lead—Brown sugar	16	@	17
White sugar (crystals)	17	@	18
Nitrate	18	@	20
Potash—Bichromate	68	@	72
Carbonate (6 grades)	1	@1	50
Caustic	75	@1	00
Chlorate crystals	70	@	75
Prussiate red	6 00	@7	50
Yellow	1 75	@2	00
Soda, Sal, 100 lbs.	1 25	@1	30
Concentrated, 100 lbs.	1 75	@2	00
Caustic, 60 per cent.	6	@	6¼
76 per cent.	6½	@	7
Powdered, 98 per cent.	6	@	6½
Acetate	14	@	15
Ash, carbonated, 48 per cent.	3	@	3¾
58 per cent., bags	—	@	4
58 per cent., bbls.	—	@4	05
Arsenate, 50 per cent.	—	@	—
72 per cent.	—	@	—
65 per cent.	—	@	—
Bicarbonate, 100 lbs.	1 75	@2	25
Bichromate	56	@	60
Bisulphite, 32 degrs., 100 lbs.	1½	@	1¼
40 degrees, 100 lbs.	1¼	@	1⅝
Granular	5½	@	6
Chlorate	52½	@	55
Hyposulphite, in casks	3	@	3¼
In kegs	3¼	@	3½
Nitrate, carload lots	—	@	—
Less than carload lots	3¾	@	—
Nitrite	18	@	20
Phosphate (Commercial)	5	@	6
Prussiate crystals	1 25	@1	50
Sulphate	—	@	—
Sulphide, powdered	—	@	—
Sulphide, crystals	3	@	3½
Do., concentrated	4	@	4¼
Soap, green, olive, imp.	—	@	—
Domestic	—	@	—
White olive oil	—	@	—
Tartar emetic, technical	55	@	56
U. S. P.	61	@	62
Tartar, salts of	—	@	—
Cream tartar—Crystals	44½	@	46
Powdered	44	@	45
Tin—Muriatic, 54 degs.	—	@	23
33 degs.	—	@	16
Crystals	34½	@	35
Bichloride, 50 degs.	—	@	16½
Oxide, bbls.	60	@	62
Zinc dust	35	@	40
Zinc oxide (foreign), Red seal	32	@	35
Green seal	—	@	—
White seal	—	@	—
Domestic	—	@	—

DYE SHIPMENTS QUESTIONED

Trade Hopes for the Best, but Skepticism Is General

Interest in the local dyestuff and chemical market of course centers on the announcement made last week of permission obtained from Germany for the shipment of 15,000 tons of dyestuffs to this country. Ever since the publication of this announcement speculation has been rife as to the probabilities of the receipt of any such quantity of supplies, most of the opinions heard being decidedly skeptical. There have been apparently no developments of note during the week. Great Britain's permission has still to be obtained for the shipment of all supplies above the two shiploads for which permit has been granted, and negotiations toward this end are likely to prove of tediously long duration, if present indications are any criterion. The general feeling in the local market seems to be one of hope that some part at least of the 15,000 tons will be received in this country, but the form that this expression takes indicates the pessimism prevalent. Any dyestuffs received in this country will be distributed through the regular channels, the importing houses, it was stated this week by a man in close touch with the situation. He declared there was no truth in reports to the effect that the German consul in this city would have charge of the distribution.

The chemical market remains quiet and firm generally. Dealers almost unanimously report business as dull, with nothing in the way of new developments.

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White and Colored Cotton for Mixing in Woolen Mills

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High Grade WEAVING and KNITTING YARNS
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COTTON YARN QUOTATIONS

The following quotations have been compiled in Boston.

EASTERN PEELERS.

CONES.

	Carded.	Combed.
8s	22 @22½	28 @29
10s	23 @23½	29 @30
14s	24 @24½	30 @31
16s	25 @25½	31 @32
20s	26 @26½	33 @34
22s	27 @27½	34 @35
24s	28 @28½	35 @36
26s	29 @29½	36 @37
30s	31 @32	38 @40
32s	**32 @33**	**40 @41**
34s	**33 @34**	**41 @42**
36s	**34 @35**	**42 @43**
40s	40 @41	47 @48

TWO-PLY SKEINS.

	Carded.	Combed.
12s	**25 @26**	**32 @33**
14s	**26 @27**	**33 @34**
16s	**27 @28**	**34 @35**
18s	**28 @29**	**35 @36**
20s	**29 @30**	**36 @37**
22s	**30 @31**	**37 @38**
24s	**31 @32**	**38 @39**
26s	**32 @33**	**39 @40**
28s	**33 @34**	**40 @41**
30s	**34 @36**	**40 @42**
36s	**39 @40**	**45 @46**
38s	40 @41	47 @48
40s	**42 @44**	**50 @52**
50s		60 @62
60s		70 @75
70s		80 @85
80s		90 @95

TWO-PLY WARPS.

	Carded.	Combed.
2-30s	**35 @36**	**41 @43**
2-36s	**40 @41**	**46 @47**
2-40s	**43 @45**	**51 @52**
2-50s		61 @63
2-60s		71 @76
2-70s		81 @86
2-80s		91 @96

EASTERN EGYPTIANS.

SINGLE SKEINS (COMBED).

30s	**53 @54**	**55s**	**68 @70**
35s	**56 @57**	**60s**	**72 @73**
40s	**59 @60**	**70s**	**81 @82**
45s	**62 @63**	**80s**	**91 @92**
50s	**65 @66**	**90s**	**1 01 @1 02**

TWO AND THREE-PLY SKEINS (COMBED).

30s	59 @61	65s	82 @84
35s	62 @64	70s	88 @91
40s	65 @67	75s	93 @95
45s	68 @70	80s	98 @1 01
50s	71 @73	90s	1 08 @1 11
60s	78 @80		

TWO-PLY WARPS (COMBED).

2-30s	60 @61	2-50s	72 @73
2-35s	63 @64	2-60s	79 @80
2-40s	66 @67	2-70s	89 @91
2-45s	69 @70	2-80s	99 @1 01

COPS.

	Carded	Combed
6s & 8s	40 @41	45 @46
10s & 12s	41 @42	46 @48
14s	42 @43	47 @48
15s & 16s	43 @44	48 @49
18s & 20s	44 @45	49 @50
20s	45 @46	50 @51
24s	46 @47	51 @52
26s	47 @48	52 @54

COMBED SEA ISLAND.

	Single.	Two-ply.	Reverse twist thread- yarn.
12s	60 @61	— @—	62 @63
14s	61 @62	— @—	63 @64
16s	62 @63	— @—	64 @65
18s	63 @64	— @—	65 @66
20s	64 @66	— @—	67 @68
23s	65 @67	— @—	68 @69
28s	66 @68	— @—	69 @70
30s	67 @69	— @—	71 @72
40s	72 @74	74 @76	77 @78
60s	83 @85	85 @87	89 @90
70s	90 @92	92 @94	98 @99
80s	1 00@1 02	1 02@1 04	1 10@1 15
90s	1 10@1 15	— @—	1 15@1 20
100s	1 20@1 25	1 30@1 35	1 20@1 25

Sea Island warps and skeins for mercerizing are worth 2 or 3 cents less than thread yarn.

The following quotations have been compiled in Philadelphia, New York and Providence.

SOUTHERN YARNS.

SKEINS—WARP TWIST.

6s & 8s	20½ @21	20s	23½ @24
10s	— @21	24s	24 @24½
12s	21½ @22	26s	26 @26½
14s	22 @22½	20s	28½ @29
16s	22½ @23	40s	— @38

TWO-PLY SKEINS.

2-8s	20 @21	2-24s	28½ @29
2-10s	20 @21½	2-26s	29½ @30
2-12s	22 @22½	2-30s	31½ @32
2-14s	— @23	2-40s	40 @41
2-16s	24 @24½	2-50s	54 @55
2-20s	25½ @26	2-60s	59 @61

SINGLE WARPS.

10s	21½ @22	24s	25 @25½
12s	21½ @22	26s	— @26
14s	21½ @22	30s	28 @28½
16s	23 @23½	40s	36 @38
20s	23 @23½		

TWO-PLY WARPS.

2-8s	20 @21½	2-24s	28½ @29
2-10s	21½ @22	2-26s	29½ @30
2-12s	22½ @23	2-30s	31½ @32
2-14s	23 @23½	2-40s	41 @42
2-16s	24 @24½	2-50s	54 @55
2-20s	26 @26½	2-60s	60 @61

3-8s hard twist on tubes, 19½@21 cts.; 3-8s skein and 4-8s skein, 19½@21½ cts.; 2-10s and 2-12s slack, 21½ cts.

CONE (FRAME SPUN).

6s	— @20½	20s	23½ @24
8s	— @20½	22s	23½ @24
10s	— @21	24s	— @24½
12s	21 @21½	24s Extra	25 @25½
14s	21½ @21¾	26s	25½ @26
16s	22½ @22¾	30s	26½ @27
18s	— @23	40s	37 @38

BLACK AND WHITE D. & T. SKEINS.
(All prices nominal.)
(Carded.)

2-20s	42 @43	2-30s	45 @46
2-26s	44 @45	2-40s	53 @55

STAPLE COMBINATIONS.

8—30s	42 @43	20—40s	51 @52
10—30s	43 @44	20—60s	— @60
14—30s	44 @45	16—80s	— @63
16—30s	44 @45	16—120s	— @75

Jack spools, 2 cts. more.

BLENDED.

2-16s	45½ @46½	2-26s	48 @49
2-20s	46½ @47½	2-30s	49 @50
2-24s	47½ @48½	2-40s	56 @57

For 25 per cent. blend, 2c. less; for 75 per cent. blends, 2c. more.

EASTERN PEELERS AND EGYPTIANS.
(Cones or tubes.)

Combed Peeler.		Combed Egyptian.	
2-20s	41 @42	2-20s	47 @51
2-24s	42 @43	2-24s	48 @52
2-28s	44 @46	2-28s	50 @55
2-30s	46 @48	2-30s	52 @57
2-34s	48 @49	2-34s	54 @55
2-36s	49 @50	2-36s	55 @59
2-38s	50 @51	2-38s	57 @61
2-40s	53 @55	2-40s	63 @64
2-50s	60 @62	2-50s	67 @67
2-60s	70 @72	2-60s	77 @78
2-70s	83 @88	2-70s	92 @93
2-80s	93 @98	2-80s	1 02 @1 03

CARDED PEELER CONES.

10s	23 @23½	24s	28 @28½
12s	23½ @24	26s	29 @29½
14s	24 @24½	28s	30 @31
16s	25 @25½	30s	31 @32
18s	25½ @26	32s	32 @33
20s	26 @26½	34s	33 @34
22s	**27 @27½**		

CARDED PEELER, SHUTTLE COPS.

8s	— @21½	26s	— @28
10s	— @22	28s	— @29
12s	— @22½	30s	— @30
14s	— @23	32s	— @31
16s	— @23½	34s	— @31
18s	— @24	36s	— @33
20s	— @24½	38s	— @35
22s	— @25	40s	— @36

SOUTHERN COMBED SEA ISLAND.

WARPS AND SKEINS.

2-20s	62 @67	2-60s	87½ @90
2-30s	64 @69	2-70s	97 @98
2-36s	69 @74	2-80s	1 10@1 12½
2-40s	75 @80	2-100s	— @1 15
2-50s	85 @88		

SOUTHERN COMBED PEELER.

WARPS, SKEINS AND CONES.

2-30s	44 @45	2-60s	70 @74
2-36s	— @48	2-70s	81 @84
2-40s	51 @53	2-80s	90 @95
2-50s	61 @64	2-100s	95 @1 00

SINGLES.

30s	37 @38	60s	64 @66
40s	— @45	70s	74 @75
50s	55 @56	80s	82 @84

MERCERIZED COMBED PEELER.

CONES—(UNGASSED).

Southern Yarns.		Eastern Yarns.	
2-20s	— @58	2-20s	— @62
2-30s	— @58	2-30s	— @64
2-36s	60 @63	2-36s	62 @68
2-40s	64 @66	3-40s	66 @70
2-44s	66 @68	2-44s	70 @77
2-50s	73 @76	2-50s	76 @82
2-60s	86 @90	2-60s	89 @95
2-70s	95 @1 02	2-70s	1 02@1 12
2-80s	1 15@1 25	2-80s	1 25@1 30
		2-100s	1 40@1 65

Extra cost for gassing approximate: 30s and below, 4c.; 30s to 40s, 3½c.; 40s to 50s, 5½c.; 50s to 60s, 6c.; 60s to 70s, 7c.; 70s to 80s, 8c.; 80s to 100s, 11c.

Less cost for skeins: 20s and below, 3c.; 20s to 30s, 4c.; 30s to 40s, 4½c.; 40s to 50s, 5c.; 50s to 60s, 6c.; 60s to 70s, 7c.; 70s to 80s, 8c.; 80s to 100s, 11c.

YARN MARKETS—COTTON—Continued

BULLS PREDOMINATE IN COTTON YARN MARKET

Prices on Plys Rising to Higher Levels With Steady Domestic Demand—Spinners Sold Ahead

There are few bears to be found among dealers in the cotton yarn market, while bullish sentiment is stronger than is has been in several years. There is still considerable irregularity in quotations, but sales at prices under the market are less frequent. Dealers are not getting the prices from consumers they are forced to pay spinners, but concessions are not as broad, and full prices are in sight. Demand is steady from all branches of domestic trade, and inquiries point to a resumption of export buying.

WEAVING YARNS ADVANCE

Top quotations of last week on ply yarns have been firmly established and sales at ½c. higher have been made on popular numbers. The activity of 20s two-ply in both warps and skeins has been a feature. Only a short time ago 25c. on warps was considered a full price, but to-day 26c. is the botton and considerable yarn has changed hands at 26½c. Skeins of that number can be bought ½c. under the price asked for warps. Two-ply 30s were sold several weeks ago at 32c., but that price was then obtainable only on special lots where immediate shipment was desired, and freight congestions necessitated the premium for spot goods owned within reach. Now 32c. is firmly established with 31½c. considered the bottom. Two-ply 40s are active with quotations ranging from 41 to 42c. on warps and skeins about 1c. less. There are instances where spinners have sold their product into next year, but these as yet are not general, although the rank and file have orders into October and November. In many cases quotations for distant future delivery have been named by spinners at prices a trifle lower than for delivery within the next three months, although there are certain spinners who anticipate increased costs that warrant holding out for higher prices. Cotton is cheaper than it has ever been with yarn prices at levels such as at present, but to counteract the saving spinners are making on raw material there are increased labor costs, and high mill supplies. These factors, however, still leave a considerable balance in favor of the spinner.

SINGLE YARNS IRREGULAR

There is more irregularity in quotations on single yarns than plys. It is difficult to explain this situation. Single yarns are quiet in comparison with the others, and the supply is still more than adequate to meet demand. In one section of the market 20s single warps are offered at 22½c., while in another it is reported that sales at 24c. have been made. On 26s the market is generally firm at 26c. and on finer numbers there is less irregularity with better demand. Single combed yarns are exceptionally hard to obtain and prices have advanced until certain weavers claim they are out of reach.

KNITTING YARNS FIRM BUT QUIET

Knitters came into the market three weeks ago in a way that had every indication of extensive buying, but after cleaning up stocks in this market retired to await further developments. The market has held firm, as spinners are not in need of immediate business and have confidence in the strength of their positon. There is no change in quotations of last week. There are dealers who seem unable to explain the strength of cone yarns, as they claim their sales have not been up to expectations. It has been repeatedly stated in these columns that export business has been a determining factor. Orders for millions of pounds of yarn for export have been placed during the last few months, on which deliveries are still being made. New business is not large, but orders of minor importance are being placed regularly and inquiries point to greater volumes. Knitters up-State and in Pennsylvania have been unable to establish a price list for spring 1917 merchandise and seem unwilling to purchase yarns until they are better assured of the value of their product. Dealers are urging their regular customers to enter the market, as they can see nothing but higher prices ahead.

LESS BUSINESS REPORTED

Cotton Yarns at High Prices Sell in Scattered Fashion

PHILADELPHIA, April 25.—Actual business in cotton yarns this week is reported limited. The Easter holidays in this section tended to break the week more or less, and thus cut into possible activity. Prices still show an advancing tendency in spite of the statement by many houses that they have not been able to place any business with spinners. There is a fair interest reported in yarns, but since spinners were sold ahead, their ideas of price are higher than many buyers care to pay, and consequently sales with several houses fell off. Sales for delivery in late summer and fall are reported in both knitting and weaving yarns in scattered fashion. Yarns for export continue a strong factor. Yarns for duck in coarse numbers of three-ply are said to be in request, and selling at top prices. There are many houses, however, which are not at all anxious for export business as they say the cost and trouble of packing and compressing yarns for shipment, make it an expensive proposition and, wipe out much of the apparent profit. The good trade lately developed at home has also made many factors indifferent to these foreign possibilities.

WEAVERS BUYING OCCASIONALLY

Weaving mills are reported showing interest in certain quarters for deliveries in August, September and October in two-ply yarns, especially 20s. This development is taken as an indication of confidence in present market conditions. This yarn shows continued strength in prices, with several spinners asking 26½c. Dealers here are said to be willing to sell at 25½ and 26c. There appears to be a steady consumption of 30s two-ply warps, with prices 31½ to 32c., though spinners in some cases quote 33c. The fact that many mills are using cotton yarns in place of higher priced worsteds is said to be the big factor in causing this demand and the yarns are going into cotton-worsteds or all cotton fabrics. On 40s two-ply warps there is said to be not so much demand at 40 to 41c. While 20s single warps have been rather quiet at 22½ and 23c., sales were made at 25c., where a buyer insisted on getting a certain yarn. There is not much demand generally noted on 8s three-ply tubes and skeins, and prices run from 20 to 21½c.; 14s single warps are quiet at 21½ to 22c.; 12s shuttle cops are offered at 22½c.

CARDED YARNS LIMITED ACTIVITY

Carded framespun knitting yarns are meeting scattered interest from certain manufacturers who are disposed to place

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NEW YORK BOSTON

READING, PA. AMSTERDAM, N. Y.

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YARN MARKETS—COTTON—Continued

orders at their ideas of price. On 10s spinners are asking 21 and 21½c. as a rule. Stocks of these framespun yarns are said still to be large, and enables certain factors to cut prices and take sales away from competitors. On 24s, from 24 to 24½c. is noted. On mulespun yarns 22c. is being quoted for 10s on an average. Mills are busy on rush orders for goods, and many of them are well covered on yarn for this business, which explains to dealers the lack of generally active demand.

COMBED YARNS ADVANCE

Combed yarns continue to develop strength as demand continues. Although most manufacturers are said to be well covered now, there is still a call for yarns to fill in, for deliveries are not everywhere prompt. As spinners are sold ahead on these yarns, they naturally advance their quotations, and many southern mills are now asking more than eastern mills. One mill trying to stave off business on 80s two-ply combed peeler, quoted $1, only to be surprised by getting the order, and this price is now heard all over the street, although in some quarters warps are quoted at 90c. Demand on ply yarns runs from 40s to 70s as a rule, with deliveries as soon as can be made. On 40s prices run 49 to 52c.; 50s around 62 to 64c.; 60s at 70 to 74c.; 70s, 81 to 84c. Several dealers say they are sold up on single combed yarns in 18s to 30s, for several months; 18s southern yarn is quoted at 31 to 31½c., with 30s at 37 to 38c. Certain mills are so well fixed with orders that their prices are out of sight, and their representatives find it difficult to get such prices paid except where a customer wants yarn badly.

HIGH PRICES RESTRICT SALES

Coarse Count Yarns Unsettled But Everything Else Firm

BOSTON, April 26.—The comparatively slow trading of the last two weeks has had no appreciable effect upon the strength of combed, fine count and mercerized yarns, and practically all carded yarns finer than 20s are as firm as before. The only sign of unsettledness is on coarse singles, and there is no indication that this is likely to develop into general weakness. Coarse count ply yarns are as firm as ever; in fact, any one having twisters can keep them employed on a night and day basis at profitable prices.

For spot delivery premiums are being paid all along the line, and these are frequently as radical upon coarse as upon fine counts. It is almost impossible to place orders for tire cloth yarns, or any variety of combed Egyptians and Sea Islands for delivery within the next three months, and the situation on combed peelers finer than 40s is equally strong. Extreme prices are being demanded by mercerizers, and premiums of 5c. a pound above recent selling prices fail to interest many mercerizers on deliveries during the next month or two. The nominal price range on combed peeler skeins is a basis of 70 to 75c. for 2-60s, and each transaction is a law unto itself; that is, the usual base prices and price ranges are not a guide to the actual market. Mercerizers have never been so well employed as at present, and selling prices are based upon what buyers will pay rather than upon what the yarns actually cost. Much the same situation obtains upon everything excepting coarse count single yarns.

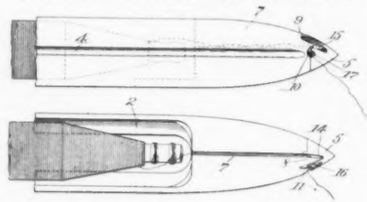
TEXTILE PATENTS

(*Continued from page* 153)

rollers, which are rotated at a higher speed than the squirrel-cage, so that between the cage and the rollers there is a certain preliminary stretching. By means of the rollers on the table the individual strips are pressed together into a single band which is then either wound up or conducted to a drawing frame and formed into slivers. The difference between feeding direct to a drawing frame in the known manner and in accordance with the present invention is that in consequence of the preliminary stretching, the stretching in the drawing frame can be kept within the permissible limits.

SELF-THREADING SHUTTLE

A self-threading shuttle recently patented is shown in the accompanying drawings. No change is made in the general shape and structure. The point is of the usual conoidal shape, and terminates in a metallic tip. Lengthwise there is a deep open radial slit, 7, whose bottom lies near the axis of the shuttle. This slit extends from the recess, 2, to



the tip. A projection, 8, extends between the slit and a recess or notch, 9; while between the recess or notch and another one, 10, is a second shorter tongue, 11. The tip has a recess, 14, in one side to receive the tongue, 8.

Between the recess, 14, and another one, 15, there is a projection, 16, which co-operates with the notch, 9. The tongue 11 enters the recess, 15, and a small recess 17 registers with the notch, 10. The projections and recesses on the body and tip are so proportioned that when the parts are assembled there is a narrow space between the body and the tip communicating with the deep radial slit, 7. This space forms a zigzag slot or passage, terminating adjacent to the thread groove, 4.

To thread the shuttle, the thread from the bobbin is laid down into the slit, 7, carried around the end of the tongue, 8, then back under the end of the projection, 16, forward around the end of the tongue, 11, and into the registering recesses, 10, 17. The operation can be very quickly and easily performed, in almost an instant of time; and when the shuttle is once threaded there is no danger of the thread becoming displaced during the working of the loom.

Silk Trade in Preparedness Parade

The silk trade in New York is making elaborate preparations to enter the Citizens' Preparedness Parade on May 13. In a circular recently sent out by Alfred Wendt, marshal, and Albert Tilt, chief of staff, it is stated that the division representing the silk industry will have about 5,000 men in line. The Sixty-ninth Regiment Armory, Lexington Avenue and Twenty-sixth Street, has been placed at the disposal of this division for formation on the morning of the parade. Six bands have been engaged, and there will be individual silk flags and badges in addition to large silk flags and banners. The Fourth Avenue district will be decorated, and the silk men will march down Fourth Avenue to join the parade at Seventeenth Street.

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This Soda has been awarded the highest prize wherever exhibited.

DEWSBURY RAG MARKET

(*Continued from page* 171)

high and that the present slump is a necessary reaction.

DECLINES ON VARIOUS LINES

In new clips the decline for the best domestic lines is over 6c. per pound, and in the lower mixed grades even more. Sorted lines are down sharply, especially coarse clips which had reached abnormal heights. Worsteds have not declined so much as other lines for their supply is limited, but still they can be bought at less money to-day than two weeks ago. In skirted cloth the fall is heavy and skirted mixed has lost 5c. per pound in three weeks. Graded lines also have declined but not so much as mixed. Unskirted is way down, but as it finds labor it is wanted more than skirted in this market. Stockings have fallen badly and compared with rates ruling a month ago, to-day's quotations are over 7c. down. Merinos and serges can be bought at a reduction of over 4c. The market is a difficult one at these limits for there is no call for graded lines.

IMPORTS MEAGER

The situation as a whole is puzzling. The largest supply is the domestic one, and importations are difficult and meager. The French Government has stopped the export of old stock for some reason. What has recently come forward has been held up in various ports and the consignees have suffered heavy losses thereby for prices declined while goods were en route. Parties to whom goods were sold will not wait longer for delivery and this adds to the importer's difficulty. Much money may be lost for it is most improbable that the prices of the last few months will return. Local holders of large stocks have decided not to realize at the moment in the hope that there may be a general steadying of the market, and a new basis of prices whereby various adjustments can be made to minimize certain loss on most lines. There are indications that this reaction is near at hand. MUNGO.

SILK MARKET

(*Continued from page* 167)

prices on yarns, but spinners are so far unwilling to offer concessions. They are in a position of strength due to the large buying which came to their hands in January and February, and until mills begin to need orders or yarns to accumulate, no sign of weakness should be evident. Manufacturers believe that there will be sufficient demand to keep silk spinning machinery engaged through the year and in the last analysis the relation between productive capacity and consumption will be a stronger factor in determining price than the simple cost of raw material.

Prices on spun silk are as follows:

60-2	4.10	30-2	3.75
50-2	4.00	20-2	3.55
40-2	3.90	10-2	3.45

ARTIFICIAL SILK

Prices for artificial silk remain in the same chaotic state that has characterized this market for several months. Importers of this yarn state that shipments from England are irregular and that they are accepting few contracts ahead. Most of the yarn is being sold only when it arrives and is going out to the manufacturing trades in small individual lots. Until domestic production and imports together supply a quantity of fiber yarn which more nearly balances demand, the market will be erratic and prices will represent simply what individual lots will bring from individual buyers.

Prices on fiber silk are approximately as follows:

150 Deniers English A, Bleached...3.25@3.50
150 Deniers English B, Bleached...3.15@3.40
150 Deniers English C, Bleached...3.05@3.30

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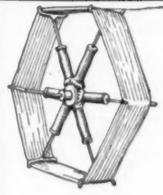

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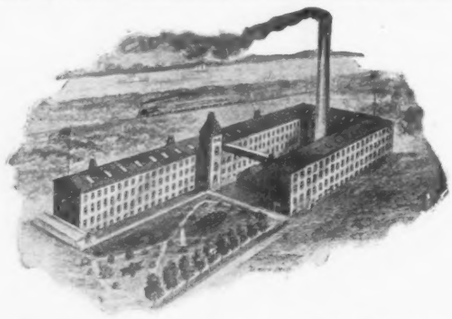

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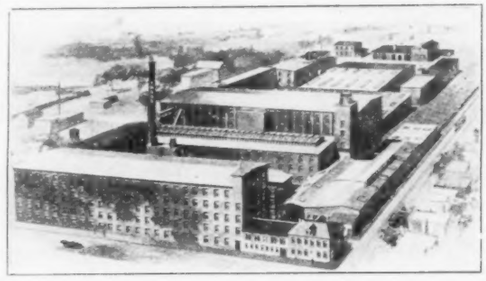

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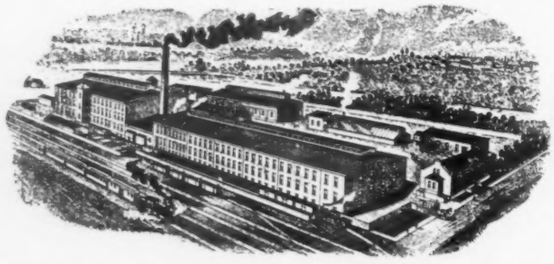

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Thrown and Artificial **Silks**

YARNS—WORSTED, WOOL, MERINO

QUOTATIONS

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BRADFORD SYSTEM.

2-12s to 2-16s low common	90	@	92½
2-20s to 2-24s low ¼	95	@	97½
2-20s to 2-25s ¼ blood	1 00	@1	02½
2-26s to 2-30 ¼ blood	1 02½	@1	05
2-32s ¼ blood	1 07½	@1	10
2-20s ⅜ blood	1 10	@1	12½
2-26s ⅜ blood	1 15	@1	17½
2-32s ⅜ blood	1 17½	@1	20
2-36s ⅜ blood	1 22½	@1	25
2-28s ½ blood	1 27½	@1	30
2-40s ½ blood	1 37½	@1	40
2-50s	1 45	@1	50
2-40s Australian	1 40	@1	45
2-50s Australian, 70s quality	1 45	@1	50
2-60s Australian, 70s quality	1 55	@1	60

FRENCH SPUN.

1-20s quarter	1 10	@1	12½
1-20s high quarter	1 12	@1	16
1-20s ⅜ blood	1 16	@1	20
1-20s high ⅜	1 18	@1	22
1-30s ⅜ blood	1 18	@1	22
1-20s ½ blood	1 25	@1	27½
1-30s ½ blood	1 27½	@1	30
1-40s ½ blood	1 30	@1	32½
1-50s delaine	1 35	@1	37½
1-40s Australian	1 30	@1	32½
1-50s Australian	1 35	@1	37½
1-60s fine Australian	1 47½	@1	50
1-70s fine Australian	1 52½	@1	55

FRENCH SPUN MERINO, WHITE.

1-40s 50-50	97½	@1	00
1-40s 60-40	1 02½	@1	05
1-40s 70-30	1 07½	@1	10
1-40s 80-20	1 12½	@1	15

KNITTING YARNS IN OIL, BRADFORD SYSTEM.

Dyed prices nominal.

2-8s to 2-10s, ¼ blood	1 00	@1	02½
2-11s to 2-20s, ¼ blood	1 05	@1	07½
2-20s to 2-30s, ¼ blood	1 07½	@1	12½
2-16s to 2-20s, ⅜ blood	1 15	@1	17½
2-18s to 2-24s, ½ blood	1 27½	@1	30
2-26s to 2-30s, ½ blood	1 30	@1	32½

WOOLEN YARNS.

WEAVING.

12 to 16 cut, ¼ blood grade	65	@	68
16 to 20 cut, ¼ blood grade	70	@	73
12 to 16 cut, ⅜ blood grade	75	@	78
16 to 20 cut, ⅜ blood grade	80	@	83
12 to 16 cut, ½ blood grade	86	@	89
16 to 20 cut, ½ blood grade	89	@	92
20 to 28 cut, ½ blood grade	92	@1	00
28 to 32 cut, ½ blood grade	1 05	@1	10
30 to 32 cut, ½ blood carbonized	1 13	@1	15
32 to 40 cut, ½ blood and above	1 10	@1	20

KNITTING.

Dyed prices nominal.

Up to 2-15s, in oil	70	@	72½
2-15s to 2-23s, in oil	72½	@	75
Up to 2-15s double bleached	87½	@	90
2-15s to 2-23s double bleached	90	@	92½
Coarser numbers in 10s and lower, 2s less.			
2-16s to 2-20s cut Oxford	77½	@	82½
2-21s to 2-32s cut Oxford	80	@	85

CARPET YARNS.

Prices are nominal.

60-yd. double reel, wool filling	—	@	40
No. 2 60-yd. double reel, filling	—	@	38
First quality, ⅝	—	@	29
Second quality ⅝	—	@	26
60-yd. double reel cotton filling skein	—	@	17
(On cops)	16½	@	18
Extra best	19	@	20
Wool Ingrains, 42-yd.:			
Common	12	@	12½
Medium	14	@	14½
Best	18	@	18½
Extra best	18	@	18½
Light supers	20	@	21
Super jute 42-yd	—	@	14
Super jute (high), 42-yd	14	@	14½
Velvet wool, sun, 125-yd. white	—	@	42
Gray	—	@	34
In worsteds:			
16s 2-ply for ingrains, white	—	@	64
16s 2-ply light gray	—	@	63
16s 2-ply dark gray	—	@	—
13s 2-3 tapestry	71	@	72
16s 2-3 Brussels, white	73	@	74
16s 2-3 Brussels, light gray	72	@	73

JUTE YARNS.

Prices are nominal.

For carpets and rugs:

6-lb.	17 @18	13-lb.	12¾ @13¾
7-lb.	16½ @17½	14 to 16-lb.	13 @13¾
8-lb.	15½ @16	17 to 18-lb.	13 @13¾
9-lb.	15½ @16	19 to 24-lb.	12 @13¾
10-lb.	14½ @15	25 to 50-lb.	12¾ @13½
11-lb.	13½ @15	50 & over.	12 @13
12-lb.	13 @14½		

For plied yarns from 12 lbs. and upward, ½c., and under 14 lbs., 1c.

Venetian yarn, 11 to 12-lb., 2-ply, gray in skein, 10 cts.; black in skein, 11½ cts.; black in cops, 12 cts.

For Smyrna Rugs.

Rolls	13¾ @14
Cops	14¾ @15
Super Jute, 42 yard	11 @12
Super Jute (high)	12 @13

WORSTED YARNS QUIET BUT PRICES HOLD FIRM

Spinners Out of Market—Few Offerings Reported Now—Little Actual Business Done at High Prices

The worsted yarn market this week is reported quiet. It is in fact almost at a standstill as far as many dealers are concerned, since most spinners are practically withdrawn from the market with no further offerings of yarn to make. Prices have reached a level which most buyers do not care to meet now for future deliveries, particularly beyond the first of the year, even if spinners were willing to consider such long time business. There is disposition on the part of certain mills to show an interest in yarns on account of the chance of getting nearby deliveries, but usually they find the price quoted too high in comparison with what they have paid for yarns on order.

In discussing the situation one prominent factor said: "The worsted yarn situation is quiet partly because of the Easter holidays and partly because of the unsettled state of the contemplated strike of garment makers in New York, which has had considerable effect on the trade. Spinners on every class of worsted yarn are running to their utmost capacity, with bookings as far ahead as they dare to take. There are offerings of new business from week to week at current prices. With this condition, and with raw material prices as firm as the outlook promises for some time to come, high prices are bound to rule on worsted yarns. Stock yarns were never so completely cleaned up as at the present time, nor wool supplies so depleted. The desire of worsted goods men's wear buyers to place business for 1917 heavy-weights indicates their confidence in future market developments. The dress goods end has been more or less affected by the threatened strike, but, with few exceptions, mills are running well with principal demand for finer grade yarns.

FOREIGN BUSINESS DEVELOPS

"Yarns for the knitting trade continue in good demand as recently noted. Orders for nearby deliveries are placed at top prices, and there seems to be no tendency to let up in this demand. More frequent inquiry is reported and more business done on yarns for Canada, France, and other foreign accounts. The business for Canada shows a decided increase in volume with high prices paid for yarns which are well above domestic ideas of prices."

DELIVERIES CHIEF FEATURE

Deliveries against contracts seem to be the chief item of interest in the market to-day. There has been, it is said, more business done at an earlier period than ever before, as most manufacturers have made purchases extending well toward the end of the year. This has naturally filled up spinners' books, and their prices have advanced accordingly. High wool prices, and scarcity of skilled, or any kind of help, has also tended to stiffen prices. It is difficult to make deliveries as desired, and many mills are behind on their specifications. For 2-40s, from $1.40 to $1.45, is quoted by many spinners, but it is said to be possible to get this yarn around $1.35. Salesmen say they are confident they could sell large quantities at this lower price, but with spinners sold up, offerings are few, and the usual price of $1.40 seems too high for many buyers. Opportunities for new business, however, are limited, but there is no sign of diminished confidence in the future; it

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is merely a case for many spinners of having no yarns to sell.

Knitting yarns are likewise the center of a demand for deliveries, with scattered inquiry for yarns for prompt shipment coming in which dealers find hard to satisfy. There is not so much tendency noted for placing further orders, as most buyers realize the futility of piling up specifications with spinners when they are already hard pushed to make deliveries already scheduled. Underwear and hosiery mills are said to have bought yarns up to the first of the year, and a few are disposed to place contracts for the first six months of 1917 in both worsted and merino yarns.

DEMAND SLOWS UP

For Worsted Yarns but Prices Continue Firm

BOSTON, April 26.—Demand for worstead yarns has slowed up considerably within the week but the price situation continues very firm and upward in tendency. Most spinners are so independent of immediate business that they are refusing to consider all proffered contracts unless their price ideas are fully met. On half-blood yarns the situation is particularly firm and the firmness is most noticeable in the finer counts. While 2-40s half-blood are still quoted at $1.40 to $1.45, not a few spinners are asking a full $1.50 and are refusing absolutely to consider any new business on this count at less than this figure. Where a difference is made between Australian and domestic yarns prices on the latter range about five cents below the Australian qualities, but in most instances spinners are offering these yarns as half-blood, making, no difference as to the origin of the wool.

Dress goods manufacturers have been absent from the market for the past week or two, but there is a feeling among spinners that as soon as these manufacturers become convinced that current prices are as low as they will be for the balance of the year they will start a general buying movement; the difficulties experienced by dress goods manufacturers in determining the character of their future needs, however, restricts their activity.

SMALL TOP INQUIRY

Combers Not Pushing for Business and Prices Remain Firm

BOSTON, April 26.—Neither inquiry nor demand for tops has increased any within the week, and the market is relatively quiet. Combers, however, are not trying to force the situation, and prices remain very firm. Some inquiry has been made for distant delivery, but the independent attitude of most combers has tended to discourage any actual business of this character. There is a wide range shown in quotations, but in all instances combers are strong in their price views. For fine qualities there is a quoted range of from $1 to $1.05, while half-bloods range from 96 or 97c. up to $1. Three-eighths bloods are held in some instances for as high as 95c., and few combers will consider below 90c. for the better qualities. High quarter-blood is quoted at 80 to 82c.

An increased inquiry for noils discloses somewhat of a scarcity of the most desired grades, and in several instances dealers are asking fairly substantial premiums for their most attractive lots. Fine and half-blood qualities are the most interesting to buyers, and are relatively the firmest in price. For good Australian fine most dealers are asking 52c., yet it is possible to buy about 2c. below this figure, and domestic fine is quoted all the way form 46 to 50c., according to the views of dealers.

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SUPPLY MARKETS—RAGS, SHODDY, ETC.

QUOTATIONS

WOOL WASTE.

Fine white Australian lap waste	74	@76
Fine white lap waste	63	@68
Fine colored lap waste	58	@66
Medium colored lap waste	43	@47
Fine white Australian ring waste	65	@70
Fine white ring waste	58	@60
Fine white Australian thread waste	54	@56
Fine white thread waste	50	@53
Medium white thread waste	45	@48
Low white thread waste	38	@40
Fine colored thread waste	29	@35
Medium colored thread waste	25	@28
White spinners' waste, greasy	28	@32
Colored spinners' waste, greasy	25	@28
Australian white cards waste, dusted	34	@38
Fine white card waste, dusted	28	@32
Medium white card waste, dusted	25	@28
Colored card waste, fine, clean	15	@18
Colored card waste, medium	4	@10

CARPET RAVELINGS.

No. 1 new old wool	—	@10
No. 2 old, light wool	7	@ 7½
No. 3 old, dark wool	5½	@ 6
No. 4 union	4	@ 4½
No. 5 cotton	2½	@ 3

NEW WOOLEN RAGS.

Fine clips	25	@26
Ordinary clothing clips	22	@24

MEN'S WEAR CLIPS.

Worsteds—		
Dark	23	@24
Fine dark	29	@30
Light	25	@26
Black and white	31	@32
Brown	31	@32
Blue	34	@35
Black	40	@42
Edges	30	@32

LADIES' WEAR CLIPS.

Worsteds and Serges—		
White	40	@42
Blue	27	@28
Black	33	@35
Brown	33	@35
Green	33	@35
Maroon	33	@35
Light	27	@28
Tan	35	@37
Light blue	35	@37
Mixed dark	23	@24

FLANNELS.

Blue	27	@28
Black	28	@30
Green	28	@30
Light	28	@30
Tan	32	@33
Mixed	24	@26
Scarlet	32	@34

CLOTH.

Fine black and white	26	@28
Fine light	24	@26

HEAVY CLIPS.

Mixed Mackinaws		18
Mixed overcoatings		18
Brown chinchillas and cheviots		23
Blue chinchillas and cheviots		23
Black chinchillas and cheviots		26
Oxfords		26
Black and white		24
Mixed lights	16	@17
White chinchillas		40
Brown lights		20
Schowels		15

COTTON WARP CLIPS.

Serges, black and white		15
Serges, light		14
Palm Beach		15
Delaines, mixed colored		11
Black astrachans		12
Mixed astrachans		12
Black cloakings		13
Blue cloakings		13
Brown cloakings		13
Mixed cloakings		8
Dark unions		9½
Light unions		9½

GOVERNMENT CLIPS.

Indigo	26	@28
Khaki	33	@35
Cadets	33	@35

OLD WOOLEN RAGS.

Merinos—		
Fine light	19	@20
Coarse light	13	@14
Fine dark	18	@19
Coarse dark	13	@14
Fine black	19	@20
Small	6½	@ 7
Serges—		
Light	15	@16
Brown	20	@21
Blue	13	@14
Black	19	@20
Red	22	@23
Green	23	@24
Flannels—		
Fine white	26	@27
Coarse white	26	@27
White No. 2	22	@23
Red	20	@21
Blue	12	@13
Knit—		
White	27	@28
Blue, dark	19	@20
Blue, light	19	@20
Blue, mixed	19	@20
Black, trimmed	25	@26
Black, untrimmed	23	@24
Red	21	@22
Brown	24	@25
Light gray	10	@11
Steel gray	20	@21
Dark	17	@18
Fancy	17	@18
Hoods—		
Light	22	@23
Delaines—		
Skirted	7	@ 8
Linseys—		
Red flannel	—	@ 6
Best plaids	—	@ 6
Best brown	—	@ 6
Best blue	—	@ 6
Common gray	2¼	@ 3
Blankets—		
Wool, horse	8	@ 9
New blue clips	25	@28
New black, fine worsteds	28	@30
Light yarn, extra fine	30	@35
Light yarn, worsted	33	@38
Dark mixed, extra fine and free from cotton and silk	26	@30
Dark mixed, No. 2	18	@22
Med. to coarse grades, all wool yarn	22	@25
Red flannel, all wool	22	@24
Red knit stock, strictly all wool	25	@27
No. 1 dark blue for hosiery, strictly all wool	24	@25
No. 2, same, not all wool	17	@20
Fine dark merino, all wool, No. 1	17	@19
Med. dark merino, all wool, No. 2	16	@18
Med. dark merino, not extracted	13	@14
Med. dark merino, all wool	15	@16
Fine light merino, all wool	28	@30
Fine black merino, all wool	18	@21
Medium light merino, all wool	23	@25
Med. light merinos, extracted	18	@20
Medium black	15	@20
To order: Olives, all wool, fine	20	@25
Blues, all wool	20	@25

SKIRTED CLOTHS.

Skirted Worsteds—		
Light	13	@14
Black	22	@23
Blue	13	@14
Dark	12½	@13
Brown	13	@14
Skirted Cloth—		
Fine light	10	@11
Light	8	@ 9
Blue	8	@ 9
Plain black	8½	@ 9½
Dark	8	@ 9
Skirted, tan kersey	17	@18
Skirted, tan covered	17	@18

SHODDIES AND EXTRACTS.

Fine white yarn, best all wool	60	@66
Med. and coarse white yarn, all wool	44	@47
White knit stock, best fine all wool	44	@47
White knit stock, No. 2	40	@41
New Blue clips, best, fine worsted	41	@43

SUBSTITUTE MARKET SHOWS IMPROVEMENT

No Large Buying, But Dumping is Stopped—Slump Apparently Ended—Labor Difficulties

The local rag market shows little change from last week as far as actual sales are concerned, but there is decidedly better feeling manifested among dealers. The lowest ebb of the recent slump appears to have been reached, and while prices have not reacted except possibly in mixed stock, dumping has been checked and demand is better. Traders have been watching the market passively and operating only in a hand-to-mouth manner for several months, but this week certain factors are showing an inclination to replenish depleted stocks.

Although graders agree that the bottom of the slump has been reached, in certain quarters a wish is expressed that prices might continue to recede until they approach their old normal levels. High prices are caused by extraordinary demand coupled with little available supply. Prices on rags can be reduced to former levels only through big supply and dealers agree that it is better to sell more rags at less profit per pound than few rags at more profit per pound. Under present conditions they cannot make as large an ultimate profit as formerly. Dealers have been following the spring collection closely hoping to find in it some sign that scarcity of rags is not as bad as painted, but up to the present time, their watchfulness has not been rewarded.

LABOR TROUBLES IN SIGHT

Labor conditions are in an unsettled state throughout the textile industry and this is causing rag dealers much apprehension. Trouble of serious consequences to them has so far been avoided although the skies have not yet entirely cleared. In one quarter the report is current that there will be a lockout in the cloak trade on Saturday, April 29. The authority quoted claimed to have received this information from a manufacturer himself. Cloak makers are refusing to receive piece goods at present but are arranging later delivery for them, which, in his opinion, means an ultimate cancellation of from 50 to 75 per cent. If this lockout is declared he looks for serious consequences in the rag market with possibly another period of unsettled prices.

SHODDY QUIET

Although conditions in the shoddy market have not been booming lately, still, until two weeks ago, there was enough business carried on to keep dealers busy. Since then, however, interest has fallen off although prices held firm. Low grades, especially low wools, are quiet but some demand is noted for medium and fine. Dealers do not look for much more buying until the middle of June when mills will prepare to show new samples.

SUBSTITUTES UNCHANGED

Shoddy Mills Busy on Old Orders—Scarcity of Desired Wool Waste

BOSTON, April 26.—No important changes are reported in the substitute market. Despite rumors that there is a tendency in some quarters to concede on prices no dealers will admit that they personally are willing to shade figures. Most substitute users appear to be well covered with stock for the next month or two and are not actively interested in the market for the immediate future.

A continued scarcity of some of the most desired stocks of wool waste tends to restrict activity in this market, though generally there is no large demand. Threads are perhaps the most active stocks and show a wide range in price. In some instances fine colored thread waste is quoted up to 35c., yet it is possible to buy at under 30c.; in fact prices throughout the market depend almost altogether upon the position of the dealer and his ability to hold for top figures. Trading among dealers has been materially curtailed and the apparent inclination of most dealers is to trade direct with consumers.

Shoddy activity is largely confined to operations on old orders and the amount of new business placed is negligible. Demand for deliveries on old orders is persistent and in some instances shoddy manufacturers are behind. Prices are firm without quotable change, but the better feeling evidenced in the rag market is an important influence for further strength in shoddy quotations.

MEN'S WEAR TRADE NOTES

(*Continued from page 169*)

approached on the subject of showing last season's samples feel that the situation is too uncertain to take any chances, even in naming advances up to 45 cents a yard.

Inquiries are being made for mills which will make lines of cotton worsteds. Certain orders could be taken at the present time were the machinery available with which to make them. While a few mills are not running to capacity, in the majority of cases this situation is due either to a lack of supplies or of labor.

Some talk of cancellations has been heard during the week, but this has originated for the most part from sources which are usually bears on the situation and is not regarded as significant.

The lack of cheap goods is most apparent in fabrics adapted to the cheap cap trade. While jobbers in this class of material covered early on goods about a dollar and can supply the manufacturer with merchandise to go into the dollar cap at retail, yet for the 50-cent cap goods that were formerly used cannot be had.

Where 60-cent single width goods were formerly bought nothing can be had at first hand under 75 cents and very little at that, except where special lines for specific customers will be made up. It is reported that certain cap manufacturers are using printed sheetings to supply their requirements.

It is prophesied that the unwillingness of certain clothiers to consider the purchase of duplicates at the new prices is only temporary and that as soon as they have rearranged matters with their trade they will be active again.

It is announced that the firm of Alleyn & Marsh will dissolve partnership by mutual consent May 1.

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FOREIGN MARKETS—WOOL, YARN AND PIECE GOODS

TRADE AGREEMENT PREFACES NEW LONDON SALES

Payment Period Extended—Losses at Sea—Analysis of Buyers' Attitude

(From Our Regular Correspondent.)

LONDON, ENG., April 6.—The offer made by the London Colonial Wool Merchants' Association of an additional week's free warehousing at the auctions which were to commence on April 4 failed to satisfy buyers, who intimated that they would not attend the sales. In these circumstances the growers' representatives postponed the opening until April 11 and suggested that a conference be held in London or Bradford of delegates from each side to arrange the matter in dispute. Hopeful that a solution of the difficulty would be found the Colonial Wool Merchants' Association proposed to sell during eight days prior to Easter and five days after Easter, the opening of the fourth series to be delayed accordingly. Representatives of each side met in London April 5. After considerable discussion, in the course of which the wool warehouse keepers were permitted to explain the difficulties which beset them through shortness of labor, the following compromise was reached: Instead of requiring payment to be made at latest on the fourteenth day from date of sale, it may now be made on the twenty-first day, and wools are to remain in warehouse at the sellers' risk and charges up to 6 P.M. on the twenty-fourth day from date of purchases. Sellers and warehouse keepers were anxious that the scheme should be tried on the new series as an experiment, and if found workable, it could then be adopted for the duration of the war. On the other hand the buyers were strongly opposed to reopening the matter for discussion in the course of a week or two. A compromise was finally reached on the basis that the new arrangement should remain in force during the continuance of the war, failing, 14 days' notice from either side, such notice to be given at least 14 days prior to the opening of any series of sales. It was generally felt unwise, in view of the uncertainties arising from the war to shut the door upon future dealing with the matter.

35,000 BALES LOST AT SEA

Much concern has been aroused by the sinking last week of the steamer Achilles from Australia and the Ashburton from New Zealand. Between them they carried 35,000 bales of wool, and although the bulk thereof was going direct to manufacturing districts, the loss cannot fail to exercise influence in a season when the clip is reduced, and when so much of it has been allowed to pass this country. Moreover there is the possibility that other vessels may share the same fate at the hands of the enemy, and much of that kind of thing might bring about a famine of the raw material in the latter half of the year. No one however seems roused to the anticipation of scarcity later in the year. One or two inquiries have lately been received, but they are for classes of which there is no stock in the country districts or in London. Until the auctions such wool will not be obtainable.

WHY BUYERS ARE SLUGGISH

In the manufacturing districts trade is quiet. The postponement of the Colonial wool sales for a week has had no stimulating effect on the sale of tops and raw material. Spinners and manufacturers have stood aside, not unpelted by actual mud, they have remained inactive in the hope of causing sellers to tempt them by reduced quotations. To a limited extent their tactics have proved successful. While the largest and most influential top-makers and wool dealers refuse to make any recession in their prices, there are others who, either through financial necessity or through fear of future possibilities, have offered concessions to their customers. Such transactions, though by no means numerous, constitute the bulk of the business recently put through. In the wool trade as a whole and particularly in Yorkshire, there are a number of firms which can exist only by continually turning over their limited capital. There are also many concerns in the West Riding of nervous temperament courageous only in a rising market, which as soon as a check comes, lose confidence and see everything black and menacing. They do not see that the natural outcome of the present state of things is business of a hand to mouth character, that cost is not the dominating factor that it is under normal conditions. Users of wool find themselves now compelled to buy as their orders come in, for to delay the covering of their requirements would be a perilous speculation. When they need material, they must pay the price at which it can be secured, and while they may have cause to regret if the market subsequently goes down, they are still better off than if they had waited and the market had gone up. It is this which gives rise to alternating spurts and periods of inactivity. People such as those referred to above, who know no mean, but are either full of buoyancy or depression, are likely to fall badly in times like the present, alike in their choice of the time for buying and the time for selling.

So far the selling brokers have published only their programme of sales prior to Easter, which, extending from April 11 to 19, gives eight selling days. They have intimated that the auctions may be resumed on May 2, but if it could be found possible to complete the work in four, instead of five days, a fresh start on April 26 might be considered. Decision on this point will doubtless depend upon what the warehouse keepers can do in the way of bringing wool forward before Easter.

COPT.

February Wool Imports

Imports of wool into the United States during the month of February are given by the Bureau of Foreign and Domestic Commerce of the Department of Commerce, Washington, as follows:

	Pounds.	Dollars.
Wool tops	141,566	87,932
Wool yarns	737	688
Wool of the sheep, etc.:		
Class 1—Clothing	56,974,074	17,298,258
Class 2—Combing	1,059,525	342,858
Class 3—Carpet	10,643,803	2,577,603
Hair of the Angora goat, etc.:		
Unmanufactured	139,034	45,107

Duck Bids for Navy

WASHINGTON, D. C., April 19.—Bids were opened yesterday at the Bureau of Supplies and Accounts, Navy Department, for the following items: For furnishing 10,000 yards of cotton canvas, No. 8, soft, 22 inches wide, bids were as follows: Fred S. Bennett, New York, at 21.63c. per yard; William H. Evans, New York, at 21.9c.; Turner, Halsey Co., New York, at 20.25c., and Wellington, Sears & Co., Boston, at 19.7c.

BRADFORD TRADE QUIET WITH EASING TENDENCY

Knitters Are Large Worsted Yarn Consumers—Dyers Association Announces an Advance

(From Our Regular Correspondent)

BRADFORD, ENG., April 8.—Importers and buyers have settled their differences with an agreement that 21 days prompt is to be allowed and 24 days free warehousing. The sales will therefore begin April 11 and terminate April 19 with 60,000 to 65,000 bales catalogued. In new business the week has produced nothing worth talking about and all topmakers report slack trade. The smaller topmakers are taking most of the orders, for commission combers are now giving each of their numerous customers a turn, combing 50 to 75 packs in most cases, and it is these smaller men who are selling if they get a decent bid. Low prices are taken for 64s, but the tops are mostly on the short side. The bigger firms are still fairly firm and will not let go below 3s. 6d. to 3s. 6½d. Of course 64s can be bought at less, but such are by no means a good top. Crossbreds, too, are a little on the easy side. Good 46s carded have been sold at 2s. 3½d., 50s may be bought at 2s. 7½d., and those wanting 56s can gain a little advantage. Spinners are also easier. The fact that the Government has commandeered all the yarns spun in Leicester is most significant, and it is believed that this has been done to bring an end to rising values for yarns. There is not altogether a comfortable feeling in yarn spinning circles due to this development. It seems certain that for the time being yarns have touched high water mark, many firms are prepared to take less, and some are fearing more Government intervention.

AMERICAN HOSIERY FOR THE COLONIES

It may not be generally known that Leicester and Nottingham have for many years been a big market with French, Belgian and German spinners for mule spun yarns for hosiery manufacturing. France in particular did a big trade, the market being one of the best for Roubaix and Tourcoing spinners. One of the largest hosiery manufacturers in Leicester is authority for the statement that French spinners catered especially to the knitting trade, the Bradford product being different, because spun upon the cap system. Although fabrics made from cap spun worsted yarns should wear much better than those produced from mule spun yarns, due in large measure to the use of better class of wool and also to the greater twist put into the yarn itself, this did not interest the hosiery manufacturer at all. His mill does a huge business, but the question of price and the satisfaction of wholesale buyers was to him and the rest of the trade the prime essential, and it is true that fabrics made from mule spun yarns handle fuller than those of cap spun yarns. The inability to obtain French mule spun yarns has compelled hosiery manufacturers to come to Bradford to get what they can. Knitters are all so busy on Government work that there seems little or no surplus product to offer to the home trade for civilian purposes, and the fact that United States hosiery manufacturers are executing orders for Australia and New Zealand need surprise no one. In Sydney nine months ago it was with difficulty that decent underwear could be obtained, and things cannot have improved since that time. Wholesale distributing houses in Australia and New Zealand have had no alternative but to go to America and Japan for their merchandise. This aspect of the wool trade is well worth serious consideration. As already indicated Leicester is using colossal quantities of worsted yarns spun in Yorkshire. Government inspectors have lately been around urging that Leicester knitters be well supplied with yarns, and it is not unlikely that spinners may have their entire works commandeered.

THE LICENSE QUESTION

The chief reason urged for the material falling off in business is the absence of export trade. Licenses cannot be obtained though many firms could buy if shipping facilities were granted. It is thought that the War Trade Department is not dealing fairly with export houses, for even licenses for France are being held up. If it is purely a question of military needs and the conservation of supplies for England and her allies, nobody has a word to say against the withholding of licenses but it makes one think otherwise when fair quantities of dry combed tops are available which could be shipped to France if the privilege were granted. Undoubtedly there are stocks which can be spared to-day, and which have no market here. Whether there is now a surplus of crossbreds is an open question. New England crossbreds are sensibly cheaper than domestic wools, and yet the latter could easily be sold to America on a profitable basis. Even the Netherlands want English hosiery wools in the fleece, and these are still available in considerable quantities. There are stocks of English Downs still available which cannot be moved. There seems no reason why trade should be held up so persistently with safe neutral markets. It has just transpired that a French firm of spinners at Amiens has brought 150,000 pounds of dry combed 64s, rather short, at 3s. 7½d., but it is too early to figure the relation of this to the license situation.

THE PIECE TRADE

The most important development in Bradford is the schedule of advances announced on April 1 by the Bradford Dyers' Association, amounting, in some cases, to 50 per cent. Many people in the trade think the prices now demanded for dyeing are outrageous, particularly in view of the colossal profits made by the association as set forth in its last balance sheet. Next week a full list of the recent advances will be given in this column. There seems nothing reasonable in the rise but manufacturers and wholesale drygoods houses have no choice but to accept it. They do not expect any reform until the war finishes and more dyewares and men are available. A significant development is the action of the British Government in coming to the rescue and practically clearing the market of the French blue-gray cloths ordered by a well-known London merchanting firm, but not taken up. This has been a source of infinite trouble to manufacturers throughout Great Britain, and it is doubtful whether any will get out whole. A few million yards were ordered by this merchanting firm evidently with a view of scooping the pool and taking the cream of the profits. The order was not signed by the French military authority and when manufacturers in Yorkshire wanted to tender delivery, the buying firm could not get them through. They have been held up for months, many firms having £10,000 to £20,000 of military cloths on their hand as dead stock.

FIRST COMBING.

FINANCIAL MARKETS—MILL SHARES AND STATEMENTS

INCREASED SHARE OFFERINGS

Decreased Demand Has Little Effect Upon Prices

BOSTON, April 26.—The decreased investment demand for textile shares has resulted in a considerable increase in the available supply, but offerings of most stocks continue individually small. Among the exceptions are Appleton, Bates and Massachusetts, blocks of these stocks aggregating as much as 100 shares being offered; as there are few other offerings of these particular stocks there appears to be nothing significant in the fact that one large block of each has become available. Of most other textile shares the offerings continue individually small and scattered. Several lots of 10 to 25 shares of Pepperell, Arlington and Pacific have been available and there is a fair demand for these stocks at recent top prices; in fact, the most prominent feature of the market is the strength with which quotations are held on all high grade stocks. Brokers and investors who make a specialty of textile shares are well aware that most of the mills will make far better financial showings for the current half year than they did during the preceding six months, despite the fact that raw materials and wages are higher and that labor is scarcer. The latter factors may prevent as large an increase in dividend disbursements as was anticipated, but they are not likely to cause any curtailment of dividends. This sentiment is reflected in most of the recent private and public sales, and there is nothing significant about current small investment demand; it could hardly be expected that the active selling of the previous five or six months could be continued indefinitely. The recent slump in listed securities, caused by the tense diplomatic relations with Germany, was not felt by textile shares, and there is little doubt but that the latter would have benefitted if the slump had been long continued. Such inactive stocks as textiles are slower to respond to an advance, but have the redeeming feature of being more stable in value than the average listed stock and of responding less quickly to any permanent decline in values.

BOSTON STOCK AUCTIONS

The sales of textile shares at the Boston auctions on Wednesday were as follows:

Shrs.	Mill.	Par.	Sales.	Chge.
5	Massachusetts	100	128	..
3	Appleton (thirds)	100	120	—3½
13	N. E. Cotton Yarn pf.	100	50	..
4	Chace Mills	100	110	..
30	Arlington	100	106	—6
8	Pacific	100	141	..
40	American Mfg. com.	100	150-146¾	+29¾

103 Total.

Fall River Mill Stocks

FALL RIVER, MASS., April 27.—Most people have made up their minds that sellers of mill shares are in absolute control of the local market, and that the condition is likely to obtain for the balance of the year, if not beyond that point. Those who have been either skeptical or indifferent are heard to express their regrets at not seizing the opportunity to make money almost as easily as finding it and not being able subsequently to discover the loser. It is a Fall River characteristic in so far as relates to the policy of the offices handling stocks not to urge buying. Provincialism exists to that extent, with the effect that it rarely happens that the market moves with any degree of activity. The peculiarity has been noted on many occasions, but particularly in connection with the situation developed in January, conspicuously and strengthening from week to week. The signs of the times pointed unerringly as far back as eight months ago to substantial improvement. Because the public was not urged to enter the market and prepare to reap the increment sure to come, there was not much buying. Now there are more inquiries for stocks than there are offerings.

WATCHING WAGE MATTER

This week there has been a subsidence of the interest so very pronouncedly in evidence a week ago. The Fall River market, even though uninfluenced by the causes which are felt in general dealings, is susceptible to such things as wage agitations or talk of short time. There is not a sensible reason why anyone should be hesitant as respects the wage matter, so far as is noticeable, but those who manifest timidity are in the class of individuals who delayed availing themselves of the extremely low quotations of the recent past. It is not of much consequence, however, owing to the difficulty in making choice; and when there is a selection it is found to cost considerably more than it was necessary to pay in February. Every house reports trouble in executing commissions more on account of refusal to become a seller and lose the benefit of the very probable appreciation than in consequence of the low figures presented. At no time in several years has there been so negligible a degree of difference between bids and holding prices. Border City was sought at 116, and a raise of a point brought a transaction. One continues to hear a great deal of quiet talk of what Treasurer Durfee has done and will do with the affairs of that corporation. It is a high compliment to have it said of him that he is a counterpart of Mr. Brayton, the unpretending, but gigantic, figure at the head of the Union Cotton Manufacturing Co. Specific mention of the possibilities are not given out, but the trend of the talk is along the line of the full restoration of the prestige of the company, which was in the limited circle of payers of 8 per cent. within a decade.

Davol was not in demand when it could be procured at the low price of 90. The figure was low for a multiplicity of reasons, but chiefly on account of the regular payment of a dividend at the rate of 6 per cent. by Treasurer Hills.

When there is mention of Davis, those who are disposed to repine over lost opportunity do not like to advert to the early part of 1914. Shares were offered then at 87½, against 85 bid. There is no haggling over 120 to-day. The corporation is better off financially than during the forepart of 1914, but one did not have to be an insider nor a prophet to know that Treasurer Carpenter two years back was accomplishing the wonderful with the affairs of the Davis Mills. Ignorance of the man's ability may palliate the failure to enter the market and bare it of all the shares offered.

Another good example of loss due to supineness or want of faith is afforded by the standing of King Philip. Unless history never would repeat itself in the case of the corporation, the remotest kind of possibility, anyone with a half brain and the proper disposition for trading could not help anticipate the situation in which the buyer of King Philip finds himself. There was unstable bidding in 1914, ranging from 103½ to 105. The aloofness of stockholders served to bring about slight advances. However, it was not until last October that there seemed to be a realization that the position of King Philip was somewhat barometrical. Bidding went to 112. Now brokers report that there is a steady demand for shares at 138 whenever they make appearance.

Dividend declarations the past week promise to reduce the list of non-payers to the lowest point it has occupied in four years. Arkwright is going to pay 1 per cent.; Merchants, Granite and Mechanics have raised their percentages to 1½; American Linen is out with an announcement of 1½, as is the Shove. As was foretold, the Charlton declared 1 per cent. Unless the treasurer changes his viewpoint, buyers of shares will have to wait some time before the concern is on a basis of 6 per cent., until 1917 perhaps.

The U. S. Bobbin & Shuttle Co. has declared a quarterly dividend of $1.75 on the preferred and $1 on the common.

TWO CORPORATIONS MEET

Stockholders of the Osborn mills had been cognizant of the improvement which made it possible for them to feel that they were in for a dividend return of 1½ per cent. for an indefinite period; but it remained for the treasurer to submit his balance sheet the other day for them to understand more clearly that the surplus is on the increase and that it guarantees the future for an advanced period. The excess of quick assets over liabilities is $109,985; last year it was $97,847. Dividend disbursements amounted to $37,500.

A reduction in the indebtedness of the Ancona Co. was shown by the treasurer. The new year begins with $176,238 in obligations, compared with $201,509. At the rate of decrease, it is thought that the resumption of dividends will be resolved upon before 1916 has become a thing of the past.

New Bedford Quotations.

(By Sanford & Kelley, New Bedford, Mass.)

	Bid.	Asked.
Acushnet Mills	..	180
Beacon Mfg. Co.	102	..
Beacon Mfg. Co. pf.	114	..
Booth Mfg. Co. com.	40	..
Booth Mfg. Co. pf.	..	108
Bristol Mfg. Co.	88	..
Butler Mfg. Co. com.	..	96
Butler Mfg. Co. pf.	105	108
City Mfg. Co.	116	118
Dartmouth Mfg. Co. com.	188	..
Dartmouth Mfg. Co. pf.	100	..
Gosnold Mills pf.	93	..
Grinnell Mfg. Co.	132	..
Hathaway Mfg. Co.	200	..
Holmes Mfg. Co. com.	195	..
Holmes Mfg. Co. pf.	119	..
Kilburn Mills	..	157½
Manomet Mills	115	..
Nashawena Mills	96	..
Neild Mfg. Co.	140	..
N. B. Cotton Mills Corp.	100	..
N. B. Cotton Mills Corp. pf.	97½	..
Nonquitt Spinning Co.	104	..
Page Mfg. Co.	92½	..
Pierce Mfg. Co.	405*	415
Pierce Bros., Ltd.	100	..
Potomska Mills	132½	..
Quissett Mills com.	..	165
Quissett Mills pf.	116	118
Sharp Mfg. Co.	100	..
Sharp Mfg. Co. pf.	..	105
Soule Mills	96	100
Taber Mills	125	127½
Wamsutta Mills	119	121
Whitman Mills	156	160

* Ex-dividend.

Southern Mill Securities.

(By Morton Lachenbruch & Co., New York.)

	Bid	Asked.
American Spinning Co., com.	160	..
American Spinning Co., pf.	..	..
Anderson Cotton Mills	..	..
Arkwright Mills, S. C.	..	..
Bibb Mfg. Co., com.	165	175
Bibb Mfg. Co., pf.	..	..
Brandon Mills	35	..
Brookside Mills	160	..
Cabarrus	145	..
Cannon	150	..
Cliffside	195	225
Clifton Mills	80	90
Columbus Mfg. Co.	90	95
Courtenay Mfg. Co., S. C.	..	..
Drayton Mills, com.	..	..
Drayton Mills, pf.	..	..
Darlington	..	..
Eagle & Phenix Mills	..	..
Easley Cotton Mills	..	..
Exposition Cotton Mills	134	..
Florence	..	..
Fulton Bag & Cotton	..	..
Gaffney Mfg. Co., com.	65	70
Gaffney Mfg. Co., pf.	72	76
Gainesville Cotton Mills, Ga.	..	..
Gate City Cotton	..	..
Glenn Lowry, pf.	..	90
Glenwood	..	100
Grandet Mills	..	..
Hartsville	..	..
Henrietta Mills	115	125
Highland Park, com.	200	..
Highland Park, pf.	100	..
Inman Mills	..	..
Judson Mills, S. C.	33	..
Kesler	170	..
Lanett Cotton Mills	..	..
Laurens Mills	..	..
Lockhart Mills, S. C., com.	35	45
Lockhart Mills, S. C., pf.	85	95
Loray Mills, pf.	..	85
Manchester Cotton Mills, Ga.	..	..
Manchester Cotton Mills, S. C.	..	..
Marlboro Cotton Mills	..	..
Ninety-six	140	..
Orr Cotton Mills	..	..
Pacolet Mfg. Co., com.	95	100
Pacolet Mfg. Co., 1st pf.	95	100
Pacolet Mfg. Co., 2nd pf.	..	..
Parker Cotton Mills, com.	..	..
Parker Cotton Mills, pf.	27½	..
Patterson	135	..
Pelzer Mfg. Co.	91	..
Piedmont Mfg. Co.	126	..
Pell City	..	..
Pickens Cotton Mills	..	..
Poe & Co. (F. W.)	100	..
Salisbury	..	..
Saxon Mills	..	..
Spartan Mills	105	120
Toxaway	..	..
Union Buffalo Cotton Mills, S. C.	..	..
Union Buffalo Cotton Mills, 1st pf.	60	..
Warren Mfg. Co.	..	..
Warren Mfg. Co., pf.	..	..
West Point Mfg.	130	135
Whitney	..	..
Woodruff Cotton Mills	94½	..
Woodside Cotton Mills	..	..
Young Hartsell	..	..

MILL STATEMENTS

Name and address of company.	Line of business.	Fiscal year. Year.	Fiscal year. Date.	Assets. Cash and debts receivable.	Assets. Raw materials. mdse., etc.	Assets. Total quick assets.	Assets. Real estate, bldgs. and machinery.	Assets. Miscellaneous. Amount.	Assets. Miscellaneous. Description.	Liabilities. Total.	Liabilities. Acct's payable, floating and funded debt.	Liabilities. Capital stock.	Liabilities. Surplus, profit and loss, etc.
American Mfg. Co.	Jute	1915.	Dec. 31.	$1,700,098	$4,240,671	$5,940,769	$5,306,622	$1,120,941	Material prepayments	$12,446,748	$2,624,924	$9,000,000	$861,824
								3,000	Other stock				
								75,416	Prep'd ins., int., etc.				
Brooklyn, N. Y.	"	1914.	Dec. 31.	1,627,579	2,664,670	4,292,249	5,441,553	152,940	Material prepayments	9,945,123	363,017	9,000,000	582,106
								3,000	Other stock				
								55,381	Prep'd ins., int., etc.				
Bigelow-Hartford Carpet Co.,	Wool	1915.	Dec. 31.	3,031,140	5,480,229	7,511,369	7,993,494			16,504,863	2,140,739	13,550,000	[1]814,124
Clinton, Mass.	"	1914.	Dec. 31.	2,129,539	5,370,368	7,499,908	8,056,081			15,555,989	1,373,537	13,555,989	[2]632,452
Berkshire Woolen Co.,	"	1916.	Jan. 1.	133,939	133,424	267,363	407,709	4,440	Prepaid expense	829,512	93,621	700,000	35,891
								150,000	Good will				
Pittsfield, Mass.	"	1915.	Jan. 2.	74,699	159,755	234,454	413,680	3,861	Prepaid items	651,999	104,618	450,000	97,381

[1] Includes renewal accounts, $100,333. [2] Includes renewal accounts, $120,785.

WOOL MARKETS—BOSTON, PHILADELPHIA AND NEW YORK

WOOL PRICES TEND TOWARD IRREGULARITY

Prices on Fleeces Are Easier—New Territory Wools Begin to Arrive

BOSTON, April 27.—Considerable irregularity has developed in the local wool market during the week, but with one or two conspicuous exceptions, conditions remain strong and values unchanged. Possibly the most interesting feature of the week has been the transfer of several hundred thousand pounds of choice Ohio fleeces by a leading handler of this class of wool. These wools were sold on a basis about a cent a pound below the top of recent asking quotations, with the purpose, apparently, of adjusting Eastern markets to the standards prevailing in the West, or at least to what is considered as the reasonable basis for the buying of the new clip. These wools have been in stock for some time, and while they have been held in strong hands, the time has come evidently to square away for another and a new season. These transfers have included large lines of Ohio fine washed delaine at 37c., fine unwashed delaine at 32½c. and also at 33c., half-blood combing at 36c. and three-eighths-blood combing at 39c. This indicates a slightly easier tone here, but no such weakness is noted in the West. Latest advices continue to indicate small clips being secured on the basis of 30c. for fine and 35c. for medium. These figures are for the best wools, but as the season is backward comparatively little has yet been done. Reports from Kentucky are that the growers in that state are asking 41 to 42c. for their medium wools, the higher figure being for choice light clips. In this market, Missouri medium wools have sold at high prices, 39c. having been paid for three-eighths-blood, and the same figure is asked for quarter-blood. St. Louis reports 34c. paid for the early shorn low wools, with the little lots arriving being quickly snapped up. Something has been done in Michigan, though shearing is backward in that state also. Small clips have been transferred in that state on the basis of 34 to 35c. for choice medium wools.

FLEECE PRICES EASIER

In view of the substantial sales of fleeces noted above, quotations on Ohio wools in this market have perforce been modified a little. Based as far as possible on actual sales, current quotations are 37c. for fine washed delaine, 33 to 34c. for XX and above, 32½ to 33c. for fine unwashed delaine, 29 to 30c. for fine unwashed clothing, 39c. for three-eighths-blood combing, 38c. for quarter-blood combing, 36c. for half-blood combing, and 30 to 33c. for medium clothing. Outside the above transfers of fleeces, the leading item of interest is found in the movement of a good line of choice Montana wool in the original bags. This wool sold at 29 to 30c., the scoured cost being estimated at 73 to 75c. There has also been sold 25,000 pounds half-blood Utah at 25c. The first transaction and the price paid serves to call attention to the fact that there is no weakness apparent in Territory wools, either here or in the West. In fact, a Boston house has just bought two or three hundred thousand pounds of wool in Eastern and Southeastern Utah at 35c., the highest price yet paid in the Territory wool sections this year. The clips bought may almost be said to be freak clips, as they are light and of low shrinkage. In fact, about all the Utah and Nevada wools that have yet been seen this year are showing up exceedingly well, and the contractors and early buyers appear to be well satisfied with their purchases. Outside of this, buying throughout the Territory wool country has been mainly confined to the picking up of scattering clips here and there, wherever the growers are willing to accept what buyers consider fair prices. Such cases are rare, and in most cases the demands of the former are so extreme that scarcely anything is being done. Shearing has been delayed in many sections by unfavorable weather, and buyers are showing only a moderate amount of interest even where the wools are already shorn. Recent purchases in Montana have included several clips of fine and fine medium wool from around Billings at 27½c. Very little has been done in Wyoming thus far, though one-half-blood clip is reported to have been taken at 27c. The buying of the new clip appears to be dragging a little; at least there is none of that excitement promised earlier in the season, and which wool growers were confident would develop as soon as the buying and shearing season was really under way.

NEW TERRITORY WOOLS HERE

A few carloads of new Territory wool have arrived in this market, but scarcely anything has yet been done towards transferring them to the mills. They generally appear well, but mill buyers seem disposed to wait until the price basis of the season is more definitely fixed. No one is willing to admit that there is any weakness in the situation, but manufacturers are generally holding off, and it is said that many of them could run until next January without buying more wool, if they were obliged to do so. Conditions in the wool manufacturing industry are highly favorable. This is proven by the fact brought out by a leading wool man today, that fully 18 months' wool business has been crowded into the past year, and though there is a little hesitation at the moment, the outlook is for a continuation of this exceptional demand, at least as long as the war continues. Scattering lots of scoured Territory wools have changed hands during the week at substantially the same prices as recently noted. Choice lots of fine scoured have continued to sell at 73 to 75c., with ordinary fine at 70 to 72c. and fine medium at 67 to 70c., and stained and defective lots from 65c. down to 55c. Pulled wools continue quiet, though the movement appears to be sufficient to prevent any burdensome accumulation of such wools. For the moment the demand seems to run more to the fine edge than has recently been the case. Chicago pullers are exceedingly firm in their ideas, and are demanding 66 to 68c. for their fine A supers, with A supers at 63 to 66c. and B supers at 62 to 64c. Some demand has developed for these wools as well as Eastern fine scoured pulled, from the woolen mills. Eastern pulled wools are quoted at 75 to 80c. for fine A supers and extras, with A supers at 66 to 70c. and B supers at 65 to 67c. Combing pulled wools in the grease continue to be called for to some extent by the worsted people, recent sales being on the basis of 58 to 60c. for fine combing, 57 to 58c. for medium combing and 53 to 55c. for low combing.

FOREIGN WOOLS FAIRLY ACTIVE

There continues to be a fair amount of activity in foreign wools, though trading is restricted to some extent by the lack of available stock of the grades most wanted. Nothing definite has been obtained from the British authorities regarding the New Zealand situation. It is hinted that England has lost so many wool cargoes through German submarine and torpedo activity, that she is not likely to let out any more wool until the situation at home is better understood. The Textile Alliance has announced that there will be no licenses issued at present for the shipment of merinos to this country, and this effectually disposes of the rumor to the contrary current in the wool trade last week. Scattering lots of wool continue to be bought in the Cape Colony, but the season there is about over. Australia is entirely so, and scarcely anything is being done in South America. Two vessels came in from Buenos Aires during the week, but it is not expected that heavy arrivals will be noted from now on. In this market, there is a good demand for both New Zealand and South American crossbreds of certain grades, but the supply is limited. New Zealand 44s and 46s are especially wanted, and in some cases a better demand for the lower counts, 36s to 40s, is noted where the buyers fail to get just what is wanted. Stocks of 50s and above are not excessive, and these grades are firmly held. South American Lincolns have sold at 40c., 100 bales changing hands at that figure, but some holders are asking as high at 41 to 42c. for choice lots. Straight quarters are held at 43c. and high quarters at 44 to 45c. Sales have also included 100,000 pounds Montevideo fine wool at private terms. Shipments of wool from Buenos Aires to the United States from Oct. 1, 1915, to March 17, 1916, were 87,901 bales, and from Montevideo 6,390 bales. Transfers of Australian and Cape wools, both greasy and scoured, continue in fair volume, reported sales of greasy wool including 400 bales Australian Merinos at 78 to 83c. clean and 200 bales Fine Cape combing at 75c. clean. Scoured foreign has changed hands on the basis of 70 to 75c. for Australian and 60 to 65c. for Cape.

QUIET MARKET CONTINUES

Wools Not Moving Very Extensively —Prices Hold Firm

PHILADELPHIA, April 26.—Conditions in the local wool market have not been productive of much business this week. Stocks with dealers are not very large, and manufacturers appear to be fairly well covered for their present needs, and hence are not showing much active interest in further purchases at this time. It is what is usually known as the "between hay and grass" period, with the trade waiting for the arrival of the new wools, and for the establishment of new values. This year indications seem to point to a high level, as dealers say they hear nothing but high prices from western wool-growing sections. In one case a sale of choice wool in Colorado is reported at 35c. for a very light wool shrinking less than 50 per cent., which would make this bring around 68 to 70c. cleaned. In Nevada they are just starting picking up lots here and there at 21 to 22c., according to reports, with most wools promising to cost well over 70c. On account of these high prices trading has not moved very rapidly of late.

LIMITED SALES REPORTED

Mills are still running well on orders, but their interest in further purchases of wools is lessened by reason of the fact they have supplies which will run for several months yet. Several mills are covered until the end of the year, and are not usually anxious to go into the matter of wools for the present at least. There is some disposition to look around for available stocks for possible later purchases, and occasionally sales are made to fill in on a mills' requirements. Many of these trades are the results of several weeks' dickering. Among the sales noted this week are 150 bales of scoured Cape wools at 55 to 62c.; 400 bags of scoured Capes at 56 to 64c.; 200 bales of Cape wools at 29 to 35c.; 300 bales of Australian 64s to 70s at 37 to 43c. A small lot of quarter and three eighths fleeces sold at 38c.; sample bags of territory wool sold at 70 to 72c. for clothing fine wool. Sales on the whole are very few, so the market is generally quiet.

PULLED WOOLS QUIET

Pulled and scoured wools are not showing any further developments of late in active interest nor in the volume of actual business. Manufacturers are not showing much interest in wools, but dealers are not worrying as with mills running well, and consuming large stocks of wools, they feel it is only a question of time before they will be back in the market again for additional stocks. Then too, supplies in the hands of dealers are limited, and it is no easy matter to replace wools once they are moved, so dealers are not making any effort to arouse interest by means of shaded prices. They feel with the summer coming on, their lines of pulled wools will be in good demand, and they are satisfied to bide their time. Among the sales noted this week are: Scoured B at 65c.; scoured fine, 65c.; white scoured wool at 62c.; Scoured A at 63c.; scoured black at 67c.; scoured B stained at 60c.; in the grease wools are B wool at 55c; brushed pulled at 57c.; and a low white wool at 37c.

NOILS STILL QUIET

Noils show no change of any consequence in demand or production. Sales are scattered and usually confined to half-blood and fine noils. Prices run along the same lines as previously noted, with half-blood at around 43 and 45c.; fine at 45 to 50c., according to condition, while quarter-bloods are held around 40 to 42c. for choicer selections.

CARPET WOOLS WAIT

Carpet wools are rather quiet this week, as this trade is marking time until the opening of the new season early next month. Once this is out of the way, the trade is expecting to have activity resumed, as far as possible, with limited supplies of these wools now available. Quotations in the China market are exceedingly high, and most of the wools now arriving are sold before they are landed.

WOOLS HOLD FIRMLY

Market Generally Quiet — Certain Dealers Report Interest

NEW YORK, April 27. The local wool market situation is the same as has existed for several weeks and may be characterized in two words—quiet and firm. Dealers are optimistic about the situation and believe prices will be maintained for the present at least, with the possibility of an upward trend. To judge from western reports relative to prices asked by growers for wool in the grease, it appears highly probable that prices will advance shortly. For instance growers in Texas are asking a price on their wool which means the equivalent of 76 to 78c. cleaned and scoured here. The same grade is now quoted on the local market around 70c.

As usual, when trade is practically at a standstill dealers are not in complete agreement as to conditions. Certain ones report more interest prevalent

RAW WOOL MARKETS—Continued

among manufacturers this week with prospects of sales in sight. Others say that little interest is shown by manufacturers, and that there are no signs of their coming on the market for more than absolutely necessary to fill immediate requirements. The majority hold this latter opinion. It is natural when manufacturing is continuing at such an unprecedented rate that a few mills should find need of certain grades, but this does not mean a general buying interest. In fact, it is no unusual thing for mills to refuse to look at dealers' samples and to inform them they are not in the market.

WEAK HOLDINGS ELIMINATED

Certain weak holdings have been lately eliminated. These have all been small lots on which, because of defectiveness, the lack of capital or some other ulterior motive, the owner has been willing to make concessions. They have been eagerly sought out by manufacturers who have tried to use them as a criterion as to prices. When a lot has been offered them at market value they have used the argument that they have been able to buy for less money. In every case investigated, however, it has developed to be either a small lot, or it was offered in conjunction with another lot on which the seller made up his apparent loss. One well-known wool broker reports he has made cash offers a fraction below quoted prices this week for sizable lots but without success. Ordinarily, he says, such bids would have been quickly accepted.

CARPET WOOLS

Although over 2,700 bales of China wools and several thousand bales of South Africa wools have arrived within the last ten days, prices have not been affected, as most of this wool was sold to arrive. The difficulty which has arisen over the advance of silver has prevented future buying, as manufacturers and dealers all refuse to take chances under present conditions. A few spot lots are still available, but are being held for high prices.

Wool Campaign Develops

Interest is still developing in the campaign for increasing the production of domestic wool, and active co-operation in furthering the work which is noted on all sides. Indications that increased interest is being taken in the subject by the Federal Government are noted, with frequent discussions of the subject in the halls of Congress, which would tend to show that the vital importance of increasing our domestic wool supply has at last been recognized by those connected with the Government. In this connection the following letter received from a sheep grower in Illinois is of decided interest, especially as referring to the question of the dog: "As I am interested in the sheep business, and when I find a good thing financially I like to tell my friends. I consider the men in the same business as my friends. I have tried Oxfords, Shropshires, Cotewolds, Crossbreds and Dorsets, and find the Forsets the best of them all; they make larger sheep on the same feed, are more handy, less liable to disease, and raise more lambs that can be put on the market sooner than the other breeds and at the top prices. I have produced 120-lb. lambs at six months of age on pasture run alone, something that I can never do with the other breeds. Never had a loss from sheep-killing dogs. Those corkscrew horns don't look good to Mr. Dog."

PHILA. TESTING LABORATORY

Textile Organizations Plan Early Establishment

A meeting of representatives of various textile organizations in Philadelphia was held on Tuesday, April 25, at the Manufacturers Club for the purpose of developing further co-operation with the Philadelphia Wool & Textile Association, for the establishment of a conditioning and testing house in that city as announced last week. Wm. H. Folwell, Chairman of the Committee on Conditioning of the Philadelphia Wool & Textile Association, presided at the conference. He outlined the work already done, and reviewed the interest which has developed among the manufacturers and the various textile trades in the city. He stated that the object of this conference was to secure the active interest and co-operation of the other textile associations in securing the subscriptions necessary to raise the required amount of $15,000. A number of subscriptions have already been received towards this sum, so that the balance it is expected will be secured in the very near future through the active efforts in the various textile organizations.

R. L. P. Reifsneider, of the National Association of Hosiery & Underwear Manufacturers, stated what had already been done by that Association in securing a number of subscriptions, which would be utilized by the united efforts of the different organizations, and urged strongly immediate action should be taken to bring about this institution.

The associations represented at the meeting were the Philadelphia Wool & Textile Association, Cloth Manufacturers Association, the Wool Yarn Spinners' Association of Philadelphia and Vicinity, and the National Association of Hosiery and Underwear Manufacturers. Among those present at the conference were Wm. H. Folwell, Folwell Brother & Co., Inc., Philadelphia; Alban Eavenson, Eavenson & Levering, Camden, N. J.; Willis Fleisher, Shelbourne Mills, Philadelphia; Thos. M. Corcoran, Shackamaxon Mills, Philadelphia; Wm. Dalpon, Frank J. Sheble, Philadelphia; J. Gordon, Gordon Bottomley, Howland Croft Sons & Co., Camden, N. J.; R. L. P. Reifsneider, National Association of Hosiery & Underwear Manufacturers.

QUOTATIONS

OHIO, PENNSYLVANIA AND WEST VIRGINIA.

Washed.		Unwashed.	
XX & abv..34	@35	Fn. unwshd.29	@30
½ to ⅝ bld.44	@45	Unm'r'ble...33	@34
Fine del....37	@38	Fine del....32	@35
		½ bld.....—	@37
		⅝ bld.....40	@41
		¼ bld.....—	@40

MICHIGAN AND NEW YORK.

Unwashed.		Unwashed.	
Fn. unwshd.27	@28	½ bld.....34	@35
Fine del....—	@30	¼ & ⅝ bld.38	@39

KENTUCKY AND SIMILAR.

½ bld.....—	@37	¼ bld.....39	@40
⅝ bld.....40	@41	Braid cbg..33	@34

CALIFORNIA (SCOURED BASIS).

Sp'g north'n fre&12mo.72	@73	S'th, 6 and 8 mos. 60	@62½
Sp. middle countries.65	@67½	Fall free...57	@58
S'th, 12 mo.62	@65½	Fall defects.55	@57
		Carbonized.55	@56

TEXAS (SCOURED BASIS).

Fine 12mo..72	@75	Fine fall...54	@55
Fine 8mo.62	@65	Georgia ...33	@34

OREGON (SCOURED BASIS).

Staple, Eastern, No. 1.78	@80	Cloth, Eastern, No. 1.70	@72
Staple, Eastern, No. 2.73	@75	Cloth, Eastern, No. 2.65	@67

PULLED—EASTERN.

Scoured.		Scoured.	
Fine A.....75	@80	Cbgs, fine..70	@73
A super....66	@70	Medium ...65	@68
B super....65	@67	Coarse 55	@56
C super....52	@55		

PULLED (CHICAGO).

Scoured Basis.			
A super....63	@66	B super....62	@64

MONTANA, IDAHO AND WYOMING (SCOURED BASIS).

Staple, fine.—	@80	Fine clothg.72	@75
Do. ½ bld.77	@79	Fine med...70	@72

UTAH (SCOURED BASIS).

Fine 70	@72	Fine med...68	@70

COLORADO AND NEW MEXICO (SCOURED BASIS).

Fine 70	@72	No. 3.....55	@57
No. 1.....67	@68	No. 4.....50	@52
No. 2.....60	@62		

NEVADA (SCOURED BASIS).

Fine med...67	@70	Fine clothg.70	@72

MOHAIR.

Domestic.		Foreign.	
Combing ...39	@35	Turkey ....—	@—
Carding ...23	@27	Cape 33	@36

FOREIGN CLOTHING AND COMBING.

Australia (scd. basis), Victorian combing:		Montevideo (greasy):	
		Lincoln...40	@41
		¼ bld....41	@43
70s.....88	@90	High 43	@45
64s.....83	@85	⅜ bld....46	@48
60s.....80	@82	½ bld....46	@48
Sydney combing		Merino ..34	@36
70s.....85	@88½	Buenos Aires:	
64s.....80	@82	x-breds:	
60s.....73	@75	Lincoln...40	@41
New Zealand:		¼ bld....42	@43
x-breds:		High 44	@45
36 to 40s.40	@43	English&Irish:	
40 to 44s.43	@45	Shropshire ..—	@—
46s.....46	@48	Sussex ...—	@—
		Irish hogs—	@—

FOREIGN CARPET.

Aleppo:		Khorassian:	
Washed...—	@—	1st clip...—	@—
Wshd col.—	@—	2d clip...—	@—
Angora ....—	@—	Mongolian:	
Awassi ....—	@—	Bijsk ....—	@—
Karadi ....—	@—	Urga ....—	@—
Bokhara:		M'n'churi'n—	@—
White ....—	@—	Scotch blk.,	
Colors ....—	@—	faced ....—	@—
China:		Camels hair	
Combing..26	@27	(Russ'n)...—	@—
Wshd cbg.32	@33½	Servian skin	
Wld. ball.27	@28	wools ....—	@—
Willowed.24	@25	East India:	
Unwld. ..14	@16	Gray ....—	@—
Cordova ...18	@20	Washed:	
Donskoi:		Vickaneer—	@—
Combing..37	@38	Joria ....—	@—
Georgian:		Kandahar—	@—
Autumn..27	@28	Spring ...—	@—

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FOREIGN WOOLS DOMESTIC
TOPS, NOILS, WASTE

MOVEMENT OF FOREIGN WOOL

The following details of the movement in foreign wool in pounds and values have been compiled by the TEXTILE WORLD JOURNAL in Boston, Philadelphia and New York. They give the entries and withdrawals for the week ending April 14. Quotations with a recapitulation of the principal grades and a resume of market conditions are also given.

Recapitulation of Week's Business Comapred with Same Period in 1915.

	1916. Pounds.	1916. Value.	1915. Pounds.	1915. Value.
Entered for consumption:				
District of Massachusetts	11,856,623	$3,305,434	16,234,987	$4,193,393
District of New York	3,566,606	930,168	739,552	147,408
Philadelphia	771,498	183,060	305,910	57,827
Total	16,194,727	$4,418,662	17,280,449	$4,398,628
Withdrawn from bond:				
District of Massachusetts	21,179	7,044	2,670	639
District of New York	.....	.....	.....	3,384
Total business for week	16,215,906	$4,425,706	17,283,128	$4,402,651
Previously reported	208,671,618		97,885,981	
Total since Jan. 1	224,887,524		115,169,109	
Entered for warehousing:				
District of Massachusetts	88,309	$31,785	38,075	$11,933
District of Massachusetts	*20,806	7,549	†35,685	6,076

* Unmanufactured animal hair. † Mohair.

RAW MATERIAL MARKETS (COTTON)—SPOT AND FUTURES

COTTON MARKET QUIET BUT GENERALLY STEADY

Small May Notices Readily Absorbed —Southern Spot Market Steady With Moderate Demand

With all the future markets closed on the Friday and Saturday preceding Easter, and with Liverpool remaining closed on Easter Monday, it was a short week in the cotton market, and fluctuations in futures were chiefly the result of near-month evening-up incident to the first May notices on Tuesday. While available supplies of cotton are known to be ample, notice day developments showed little disposition to deliver on contract, even though the later months failed to show attractive carrying charges. Prominent trade interests absorbed all the May liquidation in the local market at a discount of from 15 to 18 points as compared with July, and the notices actually issued probably represented less than 2,000 bales; the inference being that May contracts at the prevailing price represented cheaper cotton than could be purchased in the South. The market steadied after the holidays on demand for near months and scattered covering. A more favorable view of the political situation probably encouraged some scattered commission house buying, but after an advance to 12.14 for July, or about 28 points from the low level of April 3, the trade again showed an inclination to wait for fresh developments.

SITUATION IN SOUTH

Advices from the South have indicated no change of importance in the spot situation. It seems likely that cotton can be obtained at the ports and counted interior towns at slightly lower prices than required to bring supplies out from uncounted points, and a moderate, but steady demand is being filled from these stocks at prevailing prices. There are no indications of any urgent or unsatisfied demand, but neither are there indications of offerings in excess of the immediate absorbing power of the market, and the steadiness of holders who have carried their cotton through many disturbing phases of sentiment has evidently made a considerable impression. The prompt absorption of the few May notices issued at comparatively small discounts in relation to later months, and the continued activity of domestic spinners, has rendered traders unwilling to discount bearish views by sales of futures much below a parity with prevailing spot values. More trustworthy peace prospects, or unfavorable new crop advices may cause remaining old crop holders to demand still higher prices, as well as stimulate bull speculation, although bullish sentiment is now by no means aggressive and is more inclined to buy on declines than on advances. On the other hand, it is realized that the South is holding plenty of cotton, that all immediate demands are being supplied around the present level of prices, and the bearish view is that increased spot offerings would check any material advance, while the daily news shows nothing particularly unfavorable in the conditions surrounding the new crop start, the acreage question is still unsettled, and no one knows how soon it may be before there is renewed anxiety with reference to international affairs. Such considerations as these naturally emphasize the importance of new crop developments in establishing the ultimate trend of prices, and there are some who think that old crop holders will become easier to deal with, should the new crop promise well or should peace negotiations fail to develop during the summer.

The weather during the week has been generally favorable. The crop is getting a late start in earlier sections of the belt and drouth is still complained of in the southern part of Texas and in some small sections of the eastern belt. Reports also indicate a small use of fertilizer, and reports of average replies from southern correspondents have indicated a smaller increase in acreage than talked of last winter. Southern spot markets as officially reported at the close on Wednesday, are shown in the following table with comparisons, but owing to the short week, the usual figures on sales are omitted:

Market.	April 20.	April 26.	Chge.	Last year.
Galveston	12.35	12.35	....	10.10
New Orleans	11.88	11.88	....	9.56
Mobile	11.75	11.81	+.06	9.25
Savannah	11⅞	....	....	9⅝
Norfolk	11.75	11.88	+.13	9.75
New York	12.10	12.10	....	10.50
Augusta	11.75	11.75	....	9.75
Memphis	12.00	12.00	....	9.50
St. Louis	12.00	12.00	....	9.50
Houston	12.25	12.30	+.05	10.00

In addition to the quotations above, the following quotations for middling cotton and the differences on and off are given as compiled from the reports received by the New York Cotton Exchange late on Wednesday:

	Dallas.	Mem-phis.	Mont-gomery.	Au-gusta.	Aver-age.
WHITE GRADES.					
M. F.	1.00†	1.25†	.75†	.75†	.97†
S. G. M.	.75†	.62†	.63†	.63†	.70†
G. M.	.50†	.37†	.44†	.50†	.47†
S. M.	.25†	.25†	.25†	.25†	.24†
Middling	11.85	12.00	11.62	11.75	....
S. L. M.	.38*	.13*	.37*	.25*	.32*
L. M.	.88*	.50*	.81*	.62*	.76*
S. G. O.	1.50*	1.00*	1.25*	1.00*	1.26*
G. O.	2.00*	1.50*	1.63*	1.50*	1.77*
YELLOW TINGED.					
S. G. M.	....	....	.25†	.25†	.24†
G. M.	.10†	.12†	.25*	....	.02*
S. M.	.13*	.13*	.50*	Even.	.24*
Middling	.38*	.25*	.75*	.25*	.47*
S. L. M.	.88*	.38*	1.13*	.88*	.85*
L. M.	1.50*	.75*	1.38*	1.25*	1.27*
YELLOW STAINED.					
G. M.	.75*	Even.	.88*	....	.53*
S. M.	1.00*	.25*	1.13*	.62*	.76*
Middling	1.25*	.38*	1.38*	1.00*	1.01*
BLUE STAINS.					
G. M.	.75*	.13*	.88*	.63*	.56*
S. M.	1.00*	.38*	1.13*	1.00*	.87*
Middling	1.25*	.50*	1.38*	1.50*	1.21*

Note.—* Off. † On.

COTTON TRADE NOTES

The weekly weather report was summarized as follows: "The planting of cotton is nearly completed in the southern part of the region, and is progressing satisfactorily in central and northern districts. Cotton is germinating and coming up well, and an excellent stand is generally reported. Chopping has begun in Georgia. Some lack of rainfall is reported in the eastern part of the region."

Details of the above report said that rain was still badly needed in many southern portions of Texas, and that drouth was severe in coast districts of Georgia. The ground in Oklahoma was too cold and wet for normal germination, but in fine condition for plowing and planting.

A. Norden & Co. estimate the increase in acreage at 8.9 per cent., and the falling off in use of fertilizers at 6 per cent.

The International Committee of Indian Cotton Spinners is about to form a company, with $300,000 capital, for the improvement of the cultivation of cotton in India.

Writing on the position in the Far East, Shanghai friends of Hornby, Hemelryk & Co. say: "There will be a considerable shortage of native cotton this year, especially as the damage to the crop this season has been found to be much greater than previously computed. Because of these shortage difficulties our mills will sooner or later have to go in for Indian or American cotton, but as the price of the latter is so prohibitive owing to dearness of freight, the imports from India will be given a good impetus."

The Alexandria Cotton Co., Ltd., Boston, has the following by mail from Alexandria: "As regards the new crop, information received states that good climatic conditions have been prevalent during the week, which favored the germination of the cotton seed already planted. Preparation of cotton lands and sowing are going on satisfactorily, and are considerably more forward on the average than in previous years."

Test farms are being established in several Georgia counties which will be invaded by the boll weevil this year, with a view to showing that early cotton can be raised in spite of the weevil. The farms are located as near as possible to the county seats, and the farmers and others interested are united to watch the process of cultivation.

LIVERPOOL, April 24.—"It is understood that the government is seriously considering the question of securing adequate tonnage for the conveyance of troops, munitions and foodstuffs, and indications point to the strong possibility of cotton imports being restricted before long, for the simple reason that the tonnage will be diverted for the purposes already named, because the powers that be, consider Great Britain's stock of cotton sufficient for all immediate requirements and other imports much more vital to the welfare of the nation."

Reports to the *Journal of Commerce* indicate an increase of from 5 to 10 per cent. in the acreage of Arkansas and Louisiana, 5 to 10 per cent. in Tennessee, 5 to 25 per cent. in Texas, 15 to 25 per cent. in Oklahoma, and about 10 per cent. in Mississippi. The cold, wet spring has retarded planting, with the season late, but ground is well prepared.

Advices to Shearson, Hammill & Co. are to the effect that Japanese cotton buyers have done a big business in the Arkansas section lately, and are placing orders for fall cotton. Seed in Arkansas is bringing $1 per bushel for common mixed.

LIVERPOOL, April 8.—"The spot basis here continues to show irregularity in the better grades, which are freely offered owing to full supplies, but lower qualities, owing to scarcity, are very strongly held, and many spinners of low American are now using the good stapled growths of East Indian as substitutes, and these, being relatively cheap, are coming more and more into demand for makers of coarse counts of yarn."

Cotton and Cotton Oil News, in its issue of April 24: "At the meeting in Dallas this week we met ginners from all over the State, and from a very carefully ascertained summary the outlook for a large increase in acreage in Texas is not near so good as it was a month ago. In all the territory from San Antonio to the Gulf and the Rio Grande there are vast areas which have not yet been plowed, as no rain has fallen since last October, and very little of the seed which has been planted has received sufficient moisture to germinate."

Turkish Toweling Award

WASHINGTON, April 22.—The E. E. Alley Company, of New York City have been awarded the contract for furnishing 5,000 yards of 28" Turkish toweling at $1,287, by the Bureau of Supplies & Accounts, Navy Department. Bids were opened for this item on April 18.

QUOTATIONS

COTTON WASTE—MILL RUN.
(See Note.)

	Per cent
No. 1 peeler comber	82½@85
Short peeler comber	—@77½
No. 1 Egyptian comber	—@75
Short Egyptian comber	—@72½
White card strip	—@70
No. 2 White card strip	40@45
	Cents.
Dirty card fly	2½@3¼
Dirty picker motes	1½@2
Card and spinning sweeps	2½@3
Weave sweeps	2@2½
Soft white threads	3@8½
Hard white threads	7½@8
Soft colored threads	6½@7
Hard colored threads	5½@6

COTTON WASTE—GRADED STOCK.
(See Note.)

	Per cent.
No. 1 Egyptian comber	80@85
No. 1 Egyptian strips	85@90
No. 1 white peeler comber	87½@90
No. 1 white peeler strips	80@85
No. 1 white card strips	70@75
No. 2 white card strips	45@65
No. 1 white spinners	95@1 05
	Cents
No. 1 soiled card	6½@7½
No. 1 oily card	5½@6½
No. 2 oily card	3½@4½
No. 1 white willowed fly	7½@8½
No. 2 white willowed fly	6@7
No. 1 cleaned white picker	6@7
No. 2 cleaned white picker	4½@5
Soft white threads	9½@10¼
Hard white threads	8@10
Soft colored threads	7½@9½
Hard colored threads	6½@8½

LINTERS.

	f.o.b.N.Y.
Texas, clean mill run	—@8½
Texas A	Nominal
Eastern, clean mill run	—@8½
Staple linters	Nominal

NOTE.—*Percentages based on price of New York Middling Uplands spot cotton for day of shipment.*

COTTON WASTE MARKET FIRM

Life Centered in Demand for Low Grades

BOSTON, April 26.—A demand for all low grades suitable for batting manufacturers features the cotton waste market and prices of these stocks have strengthened materially within the past week or two. Best qualities of white willowed fly are held for 8½c. on a clean basis and there are reports of as high as 9c. being asked though no actual business at the latter figure is reported. A full 7c. is demanded by most dealers for good qualities of cleaned white picker though it is possible still to buy a full cent under this price. Linters are sought by many buyers but the market continues bare of these stocks and transactions are restricted to a very narrow minimum.

Card wastes are attracting some attention and up to 9c. has been quoted for best grades while good soiled card is held for 7½c. High qualities show no particular life except perhaps a fair demand in some quarters for strips and a little more interest in combers. For best grades of both combers and strips a range of 85 to 90 per cent. would cover all asking prices.

Dry Goods Division of Parade

The organization of the Dry Goods Division of the Citizens' Preparedness Parade, to take place May 13, is progressing rapidly. There are seven large banners extended across the streets of the district which includes Walker, White, Franklin, Leonard, Worth, and Thomas streets, and many private flags. Dry goods merchants are rapidly donning preparedness insignia, and enthusiasm is becoming universal. The Executive Committee of this division consists of Howard S. Borden, of M. C. D. Borden & Sons, and Col. Warren Barbour, of the Linen Thread Co., with E. C. Gibson, of that company in charge. Harry D. Cooper, of James L. White & Co., is chief marshal. There will be a marshal for each street.